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# Something amazing this way comes

This time around, I'm going to touch upon a theme that's been pretty popular for columns here at Digit, except – finally – I find myself in a position to be able to take a diametrically different view. Many of the editors and columnists in the past have often wondered, with quite a bit of disappointment, at the dearth of technology that truly amazes us. The common gripe has always been that everything is only an increment over the previous generation – whether it be a higher resolution screen, a more efficient CPU or even a bigger phone (\*ahem\* iPhone 6) – and those of us in the industry rarely get taken in by the hype. We wistfully long for the tech that can truly amaze and excite us; tech that we rarely get to experience. Where are the leaps and bounds? Where is the revolution?

Well it's coming.

And it's in the form of Virtual Reality (VR). If you're even remotely involved with tech, you've probably read or heard this proclamation before. But, before labelling me Captain Obvious and turning the page, I'd like you to stay with me, if only for a bit, and try to understand why I'm stating the seemingly obvious.

Most people who've read about VR are usually polarised into two camps. One set envisions the possibilities based on futuristic movies they've seen or science fiction they've read, and think of the unreal. And the other group remembers the shoddy "Virtual Reality" or "5D Experience" they had at amusement parks and go "meh, it's probably an iterative increment over that". I'm here to tell you that it's not.

By some estimates, there are only about 75,000 Oculus Rift kits floating around in the hands of the general populace all over the world. Even fewer of those would be the DK2 revision that I got to try recently. And the experience was revelatory. If you're one of the few who got a chance to try the rollercoaster demo on the DK1 in malls, don't judge it based on that strictly-work-in-progress prototype; the experience on the DK2 isn't comparable.

The trouble with reporting my experience with the Oculus headset is that it's extremely difficult to describe. I'm limited to mere words. Pictures and videos (for once) are utterly useless. I can't just put in a shorturl and expect you to truly "get" what I'm talking about. You have

to experience it for yourself; there's no other way. You just wouldn't know what it's like to be able to peer around corners by merely craning your neck, to have free-look capabilities in a digitally constructed world surrounding you, to be able to do barrel rolls in a space simulator (like EVE: Valkyrie) without being sick; it's quite something.

While 3D was a gimmick, VR (and Oculus as a first-to-market proof of concept) is not. Back when everyone cribbed about not wanting to wear dorky glasses to enjoy a film in 3D in their living rooms, I sagely nodded my head in agreement. 3D was more like a studio and manufacturer fuelled boom – for an industry clutching at straws to bring something new to bored consumers. Virtual Reality, on the other hand, works. Throw enough graphics processing power at it to bring down latency even further and bring up the megapixel count for the head-mounted display screens and it will have arrived sooner than you can say "Entering Quest World". And yes, in case you're wondering, I wouldn't mind wearing a bulky HMD on my face for a couple of hours a day, because the difference in the experience isn't incremental. It's exponential.

Some of the smartest people in the world believe VR is the future. John Carmack (of Doom fame) jumped onto Oculus very early and has had a significant hand in taking it where it is today. Mark Zuckerberg believed in it so much that he put \$2 billion behind his bet. Talk about voting with your wallet. Most people were bewildered about why Facebook decided to stick a finger in this pie, but now that I've experienced the possibilities for myself, I agree with Zuck. It is indeed the "next major computing platform," and makes complete sense for Facebook to enter the game early. Technology is getting social, and immersive virtual experiences of different sorts will become commonplace in the years to come. More on that in the article we've planned for the next month. For now, here's the bottom line: VR is coming and it's not just going to change the way we play games, but a whole lot of other things. 



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**"We wistfully long for the tech that can truly amaze and excite us; tech that we rarely get to experience. Where are the leaps and bounds? Where is the revolution? Well it's coming."**

Got feedback about this column?  
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# Touch-n-Feel Vs. Tap-n-Click



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**“Born in an offline buying world, I’ve taken to online shopping much like a fish to water. Having said that, I still do most of my shopping offline, even when it comes to buying tech products.”**

Technology is great at simplifying our lives. It takes something as complicated and cumbersome as offline shopping and makes it jaw-droppingly convenient and addictive via online shopping. Every negative emotion that you associate with offline shopping – anxiety, patience (waiting in line), fear (of crowds), etc. – fades away with the click of a button on your smartphone or PC; it’s so much more convenient. Why would anyone step out in the sun, brave traffic and go out of their way to buy something from a physical store when the same thing can be bought online with zero tension?

I would, and I’ll tell you why. For all its demerits, the good ol’ way of buying products – tech or otherwise – still remains popular in our country, despite the seemingly exponential growth in e-commerce over the past couple of years. Brick-and-mortar stores will let you do certain things in areas where online stores are found wanting despite all their glittering positives.


Believe me, I’m not a luddite. Despite being born in an offline buying era, I’ve taken to online shopping like a fish to water. Having said that, I still do most of my shopping offline, even tech. Especially tech. I want to be absolutely sure of the product I’m purchasing. I want to touch and feel it, ensure it meets my exacting standards and tick off all my doubts and apprehensions before agreeing to put my money where my mouth is. Especially for products that haven’t passed through our test centre.

I’ll be the first to admit that I’m enormously lazy when it comes to going out to shop, and certainly don’t indulge in it every other weekend either (who will watch all of those Premier League games?) But, whenever I head out to shop (after doing my research on what to buy, rates, etc), there’s one aspect of buying offline that I truly enjoy. Buying things that I didn’t plan on buying. Like going to Lamington Road to purchase a Wi-Fi router, only to encounter a Chromecast-like screen-casting device at an extremely affordable price which I just can’t help but buy. Or entering a large-format retail store to purchase a laptop for a friend and getting enamoured by power banks sold at competitive prices. These trivial

purchases of things that I didn’t plan on buying are executed better while shopping offline compared to shopping online, where what you see is based on your search and buying history, thereby restricting the scope of discovering new products. And I like this aspect of my offline shopping experience.

Shopping in a physical store also means maintaining bonds that have spanned years. The number has reduced and opportunities for face-to-face meetings have dwindled, mostly owing to time constraints, but I still have a few trustworthy sellers and shop owners in Mumbai that I like to frequent as often as I can – folks who have sold me everything from acid-washed jeans to PC peripherals, consumer appliances to electrical and electronic equipment.

Shopping offline also gives me the option to get off my arse and indulge in more than just isolated purchases. For e.g., my wife and I can go to a mall together, where she’s busy checking out clothes, while I’m playing with gadgets. Call some friends over and engage in some RnR, too, if possible. As an activity, buying is more fun here, than just random clicking and tapping buttons on a website. Shopping offline is so much more than just saving a thousand rupees here or there. This is where shopping online seems so impersonal, cold and business-like, and even uninviting at times.

I’m all for buying online. For those who don’t have local options, these e-portals are saviours! But for folks who have never truly experienced the joys (and pains) of buying offline, don’t wash your hands off it just yet. Give it a try and even if you don’t end up buying anything in a physical store, at least it would count as an additional step of research which propels you to ultimately buy online, ridding yourself of all doubt. What can be a better reward than that? Win-win-win! 

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# Going Banana(s)

Note: This is a work of fiction and any resemblance to events past or present, or persons, living or dead are purely intentional

Once upon a time in a land far, far away, there lived a king. His was the largest empire, and he stole ideas from any and everyone to conquer new lands. His Macrohard empire grew to cover the entire globe and no one thought they'd ever be able to compete with him. Then, he discovered a humane side to himself and went about serving the poor leaving the empire to be run by others, and it was never the same again. Good kings are very rarely succeeded by better ones, sadly.

A smaller empire – Banana – was brooding and lying in wait for Macrohard to slip up. The High Priest of the Banana clan also wanted to rule the world. However, to take over the world, you can't apply the force of law or monopoly. You need something more – something that causes people to voluntarily give up their rights, to be willing to pass up logic just to fall in line with beliefs. Empires and rulers could never control like that, only religions can. So, how do you go about starting a religion?

As with any phenomenon, marketing is essential, and the High Priest had a mind that was perhaps one of the best ever for this. Still, to get people to believe and start flocking to your religion you need a miracle. Not the everyday type, not incrementally better, but absolutely, insanely awesome.

Thus, came the miracle. In a world of squares and boring buttons and scroll bars, Banana introduced us to the Wheel! It allowed people to zip about crazily fast to get to their choice of music, at a time when music was the global obsession. A feat of engineering that the world praised (rightly so). Banana was back. It was cool, it was loved by youngsters, and to some – most importantly – it wasn't Macrohard in any way.

After many iterations of the pPod, Banana knew it would have to come up with an even bigger miracle in order to once and for all cement its place as the world's biggest religion, and make itself the most powerful clan on the planet. However, miracles aren't easy, and to outdo the Wheel on the pPod, it was going to have to work really hard.

The new empire took a bunch of older technologies and the High Priest himself worked on combining them into one perfect experience. When the pPhone was released, with the ability to use multiple fingers at once to touch it, the world had a brain-gasm. As the old adage goes,


too much touching made a lot of the world go blind, especially in that land far, far away – only a blindness to anything logical.

The High Priest went on to make the pPad and the world was his oyster. He was the genius of this era, and saw the once powerful clans of the Macrohards and the Ooglers succumb to his might, as the world went Banana.

Sadly, the High Priest was still a mortal. After he left us, a new Chef took over the Banana boat and started cooking up something new. Without the old High Priest at the helm, the Ooglers, Macrohards and even the powerful Korean empire expected and waited patiently for slip ups.

The Chef started cooking up some meals that the old High Priest was allergic to, and some of the opposing clans were quick to jump up and down crying foul. First, the pPad was made smaller, then the pPhone was made larger – something the High Priest would never allow, and yet, the Banana followers went, well, bananas.

Over 10 million of these bigger pPhones were sold in record time, despite the old High Priest himself saying that no one would ever want them. It was now clear to everyone that the land far, far away had been completely converted. Banana could launch pPoop, and even that would get sold out. In a successful religion, acceptance comes first, understanding, well, perhaps never. Like every other religion has done, the naysayers were ignored, the changes embraced, and the Banana believers even more blinded by faith.

Thankfully, I live in a country where the Banana believers are still a minority, perhaps because we can't afford the very expensive initiation ritual, or perhaps because we understand that spending all that money to get entry into the Banana republic should get us a pPhone that actually runs a whole day, or has current generation hardware. Whatever the reason, I'm just happy we haven't gone completely blind to logic with excessive touching, and still welcome all clans with open arms, without falling for the evangelism and attempted brainwashing. Three cheers for India, where religions and technology don't overlap... or do they? 



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**“...to get people to believe and start flocking to your religion you need a miracle. Not the everyday type, not incrementally better, but absolutely, insanely awesome.”**

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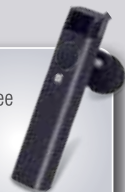
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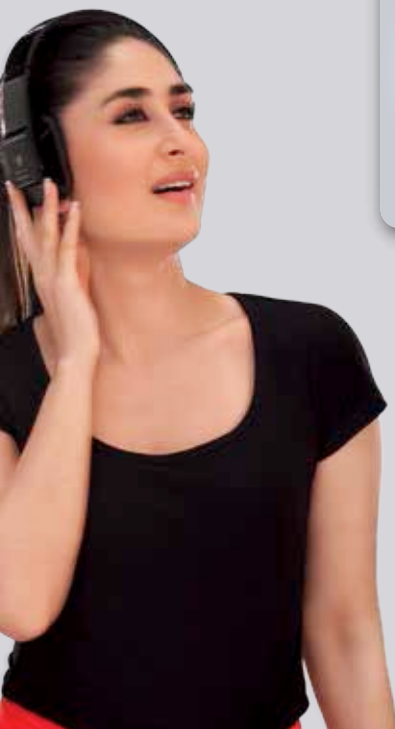


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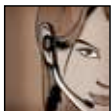
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and more...



**Buzz**

Get your fill of what's trending in the technology world from the Buzz section.

**Polaroid's action-cam?**

The Cube, a \$99 camera from Polaroid is trying to challenge GoPro with its low cost offering. <http://dgit.in/PolCube>

✉ I just received my September issue on 30th August itself. Are you kidding me??? (I'm just kidding, please always do this. Hats off to your team for the lightning fast delivery of subscriber copies. And as it was mentioned in the mail to subscribers about there being a poster included in the current issue, I was super excited. As soon as I got my copy, I searched for the poster but couldn't find any! I looked for it again and voila! The poster was inside DGT's cover page. What an innovative way to please your fans! I just love it.

Quickly coming to the feedback of the September issue, I'm just astonished by both our fantastic editors and their editorials. It always stretches my brain by a few points, and who knows, I might achieve 100% of my brain power in the near future (a.k.a. Lucy).

I just want to convey a message: Some products re-revolutionised the tech world, you guys Dgt-ised our world, by your work. So, I'll take this opportunity to thank your whole team for your effort.

Now, all praise and no critique makes Digit dull. So, here are a few suggestions:

- 1) Include such awesome posters at least once in two months.
- 2) Kindly do a Fast Track to troubleshooting your PC, mobile, tablets etc.
- 3) Some contest related to your articles on social media will be great idea!

- Abhishek Kapoor

4 Thanks for writing in, we have done a Fast Track to troubleshooting earlier, perhaps we need to re-look at that topic again what with all the new OSes out there now. Good suggestion, thanks.

- Robert

✉ Dear Digit,

I'm a 15-year-old tech geek. I'm very interested in learning ethical hacking (I even have a swag name for myself: Cyb3rvect0r). I've decided that I'm going to become a cyber-security expert one day.

Coming to the suggestions, here are a few:

- 1) I have found a couple of typos. It would be cool if you could fix those.
- 2) I am a fan of Dota 2 but there are people telling me to play League of Legends instead. I'd be extremely grateful if you could feature a "Dota 2

## Feedback for the September 2014 issue of Digit



Vs. LOL" ultimate showdown. I want to show them that Dota 2 is better.

- 3) As mentioned before, I'm very interested in hacking, so, could you include Kali Linux as your Linux distro in the DVDs?

P.S. Could you please subscribe to my YouTube channel - CraftHacking!

- Anirudh Oppiliappan

4 1) We'd love to be able to guarantee no more typos, but we know we won't be able to with our skeletal team. We can promise to be more careful and reduce the numbers significantly.

- 2) So sure of yourself are you?
- 3) We will consider that suggestion, we've given it before also.

- Anirudh

✉ I'm an avid reader of your magazine (though not a regular one). I was planning to buy a TV soon so I pre-booked the issue as soon as I noticed the cover story, and it was really worth it. It was an awesome issue. I enjoyed every page of it. So I won't go into suggestions, but I'd really appreciate if you could do a Fast Track of some selective newer coding languages (such as Python). Also, it would be great if you could review tech-related books. For example, if any student wanted to start learning Unix, what books/article should

he start with, or say, a veteran Java coder wanted to learn Python what would be the perfect book to buy. Also, I noticed an error in the issue. On page 86, the link of Bill Gates trying the ice bucket challenge was not printed fully.

- Archan Sengupta

4 We can look at some newer languages for the next coding Fast Track, sure. Book publishers aren't very forthcoming with books these days, and besides, we're honestly not likely to sit around reading the same books as students. We're not actually hardcore coders, we're more the dabble-in-everything-a-little types. We'll certainly try and include a few more interesting reads in the unwind section going forth, but again, they're not likely to be coding manuals. As for the missing URL, whoops, we'll try and be more careful with those.

- Mithun

✉ I'd like to wish you Happy Teacher's Day, as among all my tech teachers you're the best. Without a doubt.

And now, time for a big thank you from the bottom of my heart because you finally provided a game poster. I don't know how many of your readers will be able to find it, but I liked the Assassin's Creed poster very much. If you can provide the poster in the same way as your subscription form,

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## Improved surveillance

The New York Police Department is going to add two types of on-body cameras to their officers.



## Amazing USB hacks

Tap into the power of USB by checking out 10 immensely useful USB hacks that you can try out easily. <http://digit.in/USBHacks>

### LETTER OF THE MONTH

✉ First off, I'd like to thank you guys for publishing my last letter. It really warmed the cockles of my heart for quite a few days after seeing it.

Coming to the issue, I agree with Siddharth's opinion in his editorial column about the redundancy of flowery language in scientific reviews. However, please don't lose your witty humour in your articles – it's one of the main attractions of the mag! I also did the 30-second survey. Hope it helps! Also, Jayesh's recollection of his most cherished tech-related memory was heart-warming to read.

The article about anonymous social networking was highly informative, but a little scary because such sites can be used to spread false rumours and create unrest, especially by terrorist organisations. As I was pondering over this, I turned the pages and came to the article about the activity of terrorists on social media. Again, very scary, but I have faith in the world's security mechanism.

Also the, \*ahem\*, "space article" was hilarious. I can't believe you guys researched it so well!

As an aspiring entrepreneur, I found the article on start-ups very helpful.

A little about the website. I love it! The Digit Fan Club is an amazing way to keep readers engaged. A negative though: while looking through the contests page (I'd like to win too!), after the first few pages, you need to load the next page separately, and you need to do this each time you load the page again. Please fix this, if possible!

And as a suggestion, could you guys do a video version of Digit Diary? It would be so cool to watch!

One last question: If I want to be inducted into the Digit Writers' Club, is it necessary that I have a blog?

Also, get well soon Siddharth! Keep spreading the tech bug!

-Urvi Talaty

📌 Nice to hear from you again Urvi. Of course we won't lose our wit; we barely have enough anyway, so we guard whatever we do with our lives. Thanks for taking the time to write in, it means a lot to all of us.

- Siddharth



it would be great as we don't have to tear the cover page of our Dgt booklet. And also after tearing, the marks left by stapler pins spoil the presentation of the poster. So, please ponder over my suggestion.

The 'Touched By Tech' section was awesome as it highlighted the problem of clean water in the world and the ways by which tech is solving its shortage. The software provided in DVDs to ignite creativity served their purpose well. Is there any chance that you'll be able to provide Windows 9 consumer preview?

I recently started playing CSGO. Unfortunately, (and I apologise for this) but it's pirated from NoSteam, as my parents won't allow me to buy it – they think I'll get addicted to it (Well, they're right!). If you provided a CSGO Steam key in the October edition, I'd be indebted to you

forever. Thanks in advance if you do this.

- Adhyayan Panwar

📌 Thank you. No one's ever wished us on Teacher's Day before. Although we know we're not as instrumental in a student's life as a teacher is, we're glad that someone appreciates the fact that we do teach people a few things at least... Infancia asked us to thank you for appreciating her article, and hopes you're doing your part in water preservation. We will look at all of your suggestions.

- Siddharth

✉ I received my 'Technology Navigator' and Dgt' and here are some of my observations:

1. "Foldable screens a reality?" While there's nothing wrong with this article, I was expecting something related

to Samsung's transparent AMOLED laptop mentioned in it. I can't find any info related to it, so please include it in the upcoming issue.

2. This should be written first, but still. A million thanks for the article on "Design Thinking".
3. The graphics overall are really good.

- Sandeep Tidke

📌 Hello again Sandeep, we will look at writing more about foldable screens going forth, so watch out for those articles. We will let our designers know that you appreciate their work, thanks.

- Mithun

✉ Firstly, I loved the comparison you guys did. This is so far the only true, elaborate and unbiased comparison I've ever seen. I really appreciate the effort your team put into making that huge chart.

Well, now that you've ranked the 4 OSes, I just wanted to ask something...

Take an average non-techie Indian middle-aged person, who's only ever used a Nokia S40 or maybe S60 basic phone from the good old days...someone who just about knows what a computer does and has no idea what Windows or Mac means, leave alone iOS or Android. I believe this group still makes up the majority of cellphone purchasers in India. Now, suppose some of them wanted to join the 'Smart' league by upgrading their old feature phones.

Which would be the best and easiest phone to use for them? (Touchscreen will be a common issue for all four platforms and BB QWERTY is not exactly meant for everyone). A ranking would be helpful.

I'll wait for your response. And maybe, you can add something about this to your main article also. Believe me, it will help many people in deciding on a smartphone for their parents or grandparents.

- Rishav Patra

📌 That's an interesting idea, Rishav. We'll look into it. I doubt we can allocate enough resources to do this as thoroughly as the OS test, but we certainly can think of doing a buying guide for platforms specifically for the aged. Keep an eye out for it in upcoming issues.

- Robert

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### Tracking vaccinations

Biometric researchers are fingerprinting infants using off-the-shelf sensors and software in developing countries <http://dgit.in/InfantFingPrint>



### Google goes quantum

Google is building hardware to exploit quantum physics for faster computing power. Read about it: <http://dgit.in/GQuanComp>

# Changing the world

...with improved graphics, a new OS, wearable tech and online shopping monopoly



NVIDIA launches the GeForce GTX 980 – gamers, try not to drool on the page

## The day of Maxwell

Editors Day, NVIDIA's annual conference might be a misnomer considering the event is actually held over two days; still it doesn't take away from the fact that it's a celebration of gaming both from the development aspect as well as pure hardware innovation. This time around the conference was held in beautiful Monterey Bay, California and it was an event that would make any gaming enthusiast proud to be a part of the PC Master Race.

The biggest reveal of course was the GTX 980, NVIDIA's top end GPU based on the Maxwell GM204 chip. Priced at Rs. 46,000, it is currently the fastest single GPU card we've ever tested. Head on over to Page no. 95 for our full review.

Back to the event: Jeff Fisher, SVP, GeForce Business Unit, spoke about how far PC gaming and eSports has come over the

years while Tom Petersen, in turn, unveiled one of the biggest features of Maxwell – Dynamic Super Resolution (aka DSR).

The next big piece of technology announced was MFAA. In a nutshell, it gives the user the same experience as 4X MSAA at the compute cost of 2X MSAA. Another advancement in bringing the dream of photo-realistic graphics was NVIDIA's new VXGI technology. NVIDIA is confident Voxel Global Illumination is a huge step towards the holy grail of real time computer graphics. With Voxelization NVIDIA hopes to bring in game lighting one more step closer to this dream of "true" path tracing. Next came VR Direct – an attempt by NVIDIA to bring down this latency in order to truly take VR mainstream.

Editor's Day was split down the middle between explaining the Maxwell architecture and the developer updates to NVID-

IA's GameWorks platform. There were also few speakers from prominent game studios such as Eve Online CTO Halldor Fannar and a couple of folks from Ubisoft who showed the audience a work-in-progress build of Assassin's Creed Unity.

Max McCullen, Principal Development Lead for Direct3D gave much awaited details about DX12 features including Rasterizer Ordered Views, Typed UAV Load, Volume Tiled Resources and Conservative Raster. There was also mention of increased scalability across multiple CPU cores in the API (finally!).

To see videos of some of these Maxwell technologies in action head on to our full coverage report by following this link: <http://dgit.in/gfgtx980>

## Sony releases SDK for Smartglasses

Smartglasses are still in their early stages. While most of the

brands focussed on the smart-watches this year, the smart-glass segment is likely to see a lot more buzz next year when more companies foray into smartglasses. One of the major brands to enter the segment is Sony, The Japanese conglomerate is expected to launch its smartglass – called the SmartEyeglass – by March 2015.

It may be recalled Sony had recently showcased a prototype smartglass, though seemed nearly final. And now, Sony has also announced availability of software development kit for its SmartEyeglass.

Sony's SmartEyeglass is equipped with transparent lens, a CMOS image sensor, accelerometer, Gyroscope, electronic compass, brightness sensor, and microphone. The company says the SmartEyeglass "utilizes these features, together with GPS location information from the connected smartphone, to provide information optimized to the user's current circumstances."

Sony will be using its hologram optics technology to develop a lens that delivers transparency of 85% and thickness of just 3.0mm. The device has monochrome display. The SmartEyeglass has a camera mounted in the left-hand lens, and supports Bluetooth and Wi-Fi for connectivity.

Sony has also demonstrated some preloaded apps on the SmartEyeglass. A Cookpad app displays recipes and responds to voice commands whereas a Localive app gives social feeds



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## Algorithm matchmaking

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aggregation and distribution for surrounding local area.

Sony's smartglass will be competing against Google Glass and Lenovo's C1, which was announced earlier this year.

## A peek at Windows 9

Microsoft is readying the next version of its Windows platform. The company is making some significant changes to the OS and bringing back some old but sorely missed elements. It is also touting new features for the enterprise segment. WinFuture came out with the big leak that showed us many features of the new version of the OS. Here's what we know so far.

**Multiple Desktops:** Microsoft is finally adding this to Windows 9, catching up to its competitors in the Linux and Mac departments. Unsurprisingly, the UI looks very similar to the competitors too, which would perhaps get them a lot of taunts from the opposing factions.

**Notification Center:** The feature seems more like a list of shortcuts to various apps and alerts, but Microsoft may make it much more useful when it launches the actual OS.

**Cortana:** Widely claimed by Microsoft to surpass Siri, the

hugely awaited voice assistant is set to make its first appearance on the PC. No surprise if Halo fans go ga ga in fandom.

**Start Menu:** In Windows 9, Microsoft has come up with an amalgamation of the much criticized Windows 8 'Modern' UI and the old school Start menu, which looks quite good to us. Let's hope it works as well as it looks good.

Check out how all of this looks in our slide show online. Follow the link to check it out: <http://dgit.in/win9scr>

## Moto 360 Flipkarted

Motorola's Android Wear-based smartwatch, Moto 360, will be soon launching in India via Flipkart. The smartwatch is already listed on the e-commerce website, but without price and availability details.

However, Flipkart has already started teasing the device on the social media. "It's time to wear your style! Coming soon on Flipkart!," says the company in a Facebook post. Check out the Moto 360 Flipkart listing at <http://dgit.in/mtr360>.

Motorola's Moto 360 is among one of the most anticipated smartwatches. The device,



360 degrees of beauty

unveiled earlier this month, features a circular face that has a 1.5-inch Gorilla Glass 3 protected LCD display with a resolution of 320 x 290 pixels resolution. The device is powered by a 320 mAh battery, which is supposed to last all day on a single charge.

Other important features of the Moto 360 include TI OMAP 3 processor and 512MB of RAM and offers 4GB of internal storage and IP67 rated for water resistance. There's no official word on the India pricing of the Moto 360 as yet but we expect it to be around ₹15,000.

## CAIN and Snapdeal


Snapdeal, Intel and Notion Ink have tied up to launch a new 2-in-1 device called the CAIN. Priced at Rs. 19,990, the CAIN is powered by an Intel Atom Processor Z3735D. The device is exclusively available at Snapdeal.

The CAIN has a 10.1-inch IPS LCD display with 1280 x 800 pixels resolution. The device is powered by a 7900 mAh battery, rated to deliver 7 hours of video playback and 10 hours of Internet surfing. It runs the latest Windows 8.1 operating system. It has 2GB DDR3L RAM, 32GB built in storage (expandable) and connectivity options such as USB 3.0, dual charging and integrated magnetic keyboard. It

comes preloaded with one-year subscription of MS Office 365.

Mr. Vineet Durani, Director – Windows, Microsoft India says, "I congratulate Notion Ink on the launch of their first Windows-based 2 in 1 today. Our deep engagement with local OEMs is one of the engines of growth for Windows in India and we are proud of our partnership with Notion Ink. The CAIN 2 in 1 from Notion Ink is a tablet designed in India, keeping in mind specific requirements of users here. With this launch, Windows-based tablets continue to be available to consumers in India looking for innovation and value."

Mr. Tony Navin, Senior Vice President – Electronics & Home, Snapdeal.com adds: "This product promises to offer great value for consumers and is the perfect fit for Snapdeal customers looking for innovative products at lucrative Price points. We're very excited to launch the Intel Processor-Powered two-in-one 1 from Notion Ink exclusively on Snapdeal.com and are extremely positive of a tremendous response from our customers."

Mr. Sandeep Aurora, Director Marketing and Market Development, Intel South Asia further says: "At Intel we constantly strive to bring the best computing experience to end-users across form factor and this has been a core focus for us this year in India. Delivering the mobility of a tablet combined with the power of a laptop, two-in-one devices represent a new category of computing that meet users' diverse needs from work to play. Powered by Intel Atom Processor, Notion Ink's CAIN 2 in 1 will deliver a compelling computing performance and great battery life to keep pace with today's mobile lifestyle." 



Will Windows 9 be the next big thing?





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Turn over to our Web Watch section to see how social networking has evolved in today's day and age

**App watch**

Indian app developers have been busy! flip over to our App Watch section to see what's new in the Indian app scene!

# Smartphone Wars!

While others try to find a way around Smartphone addiction



Windows and Android are at it, again

## NoPhone?

A group of inventors from New York have launched a NoPhone on Kickstarter to beat your smartphone addiction. The device is a rectangular piece of plastic which resembles a smartphone but doesn't do anything.

The NoPhone Kickstarter page mentions features like "battery free, no upgrades necessary, shatterproof[and] waterproof." It is being touted as an ideal replacement for your pesky iPhone or Android phone. It also comes with an optional "Selfie Upgrade" (a mirror sticker). The team behind the NoPhone are aiming for \$30,000 in funding, for a phone which does nothing. This might very well be a prank from a group of friends, however it address a serious issue.

NoPhone's Kickstarter page says, "Phone addiction is real.

And it's everywhere. It's ruining your dates. It's distracting you at concerts. It's disrupting you in movie theatres. It's clogging up sidewalks. Now, there is a real solution."

They add, "The NoPhone is [a] technology-free alternative to constant hand-to-phone contact that allows you to stay connected with the real world."

Recent studies have revealed the cell phone addiction is becoming a very real problem with people. Researchers conducted a study that found that most users get nervous if separated from their smartphones for more than a few minutes. Another report released by the Bank of America stated that almost half of the Americans admit that they could not go a day without their smartphones.

Smartphone addiction counters seem to be on the rise, like the line of clothes called Focus: Life Gear by Trident was launched back in May (<http://dgit.in/focjap>). Designed by Japanese designer Kuni-hiko Morinaga, the clothing line blocks radio waves from reaching your smartphone, making it useless.

## 2 million Android One phones?

MediaTek is hoping over two million Android One smartphones will be sold in India this year. The Taiwan-based company has associated with Google for latter's ambitious Android One programme, aimed to deliver high quality smartphone experience on low cost devices for consumers, especially in emerging markets such as India.

"We expect 1.5-2 million Android One handsets to be sold this year in India," Mediatek VP (US business development) Mohit Bhushan told PTI. He also pointed out that the mix of software and hardware on Android One will give good experience to users. It's notable first range of Android One devices are powered by MediaTek's MT6582 SoC.

There's a lot of expectations from Google's Android One phones, and many believe it to be as successful as the Nexus smartphone line up. Under the Android One initiative, Google has tighter control on the



The NoPhone may seem like it, but it's NoJoke.



hardware, and provides stock on Android with a promise of future software upgrade. Read: Android One launch: All you need to know and Google Android One: First impressions & its potential impact in India

The first set of Android One phones were launched in partnership with Micromax, Karbonn and Spice with price starting at ₹6,399.

Praveen Bhadada, Director – Market Expansion, Zinnov, believes Google's initiative has the potential to help people switch from feature phones to

“Android One is a great new beginning and a sign of strategic importance that Google is giving to the Indian market for its mobile play. We believe that Google has got the strategy right by offering a low cost device with quality hardware specs, free data (for apps & YouTube etc.) and free content subscriptions for users. We expect AndroidOne to standardize the smartphone experience across users and drive millions of feature phone users to adopt smartphones in the near future. This opens up tremendous opportunities for device manufacturers, data service providers, app developers and technology retailers in India and other similar emerging markets.”

PwC India Leader (telecom) Mohammad Chowdhury is quoted as saying: “The festive season regularly sees an uptick in handset sales and we should expect this in the next few months. In particular there is hot competition in the segment priced from ₹7,000 upwards.”

## Microsoft won't back down

Microsoft, which plans to drop the Nokia brand from its future phones, is making plans to bring down the price point of

## In conversation with Peter Chang

The smartphone market in India has recently been infested by a surge in the budget segment. Starting with Motorola, more and more manufacturers are bringing devices to this segment and taking the competition to a whole new level. Among these is Asus, which has turned a number of heads with its Zenfone series (Zenfone 4, Zenfone 5 and Zenfone 6) of smartphones. The company has also been making big announcements globally with its Zenwatch, Zenbooks and tablet devices. It is quite evident that Asus is taking a whole new approach to the industry, leveraging areas where it already has a grasp to take steps in others. We got in touch with Peter Chang, Regional Head, South Asia & Country, Asus over email and asked him a few questions:



Peter Chang, Regional Head, South Asia & Country, Asus

**d With the Zenfone series Asus is targeting a select market segment below Rs. 20,000. Do you have plans to make higher end devices?**

**PC:** We launched 3 variants in July, 2014 in India. The series was introduced with targeting masses at large with 4, 5 and 6 inches variants. Within just two months, we have received tremendous response from the masses. The product delivers quality of a high end product yet is available at

very competitive prices. We are now coming up with a 4.5 inch variant which will further offer our existing and prospective users a broad range to choose from. Presently, these variants would be our focus. Users may expect more from our second generation of the series.

**d Asus has stuck to its partnership with Intel and the new phones have pretty good performance. But do you plan to bring Snapdragon or MediaTek powered devices in India?**

**PC:** We value our partnership with Intel and have had great experience in delivering superior quality products together. We would be continuing with our association and our promise of delivering incredible along with Intel.

**d How many units of the Zenfone have been sold in India so far?**

**PC:** We have almost sold more than one lakh units in India. The numbers are increasing every day and so is the frequency of the stock's availability.

You can read the rest of the interview online at <http://dgit.in/Asus-Interview>

upcoming feature phones and smartphones without compromising on quality of the phones. Microsoft is expected to launch a “First” series of feature phones priced under \$40 (₹2,500 approx).

Microsoft's corporate VP for phones Jo Harlow said, “It is estimated that at least 1 billion people in the world still do not have a mobile phone, while at the same time there is increasing demand for reliable backup phones in both mature and high-growth markets.”

Microsoft has introduced its “First” range of smartphones with the launch of Nokia 130

in early August. The Nokia 130 will be available in India later this year at ₹1500 (approx). Microsoft also have plans to launch the Nokia 225 internet-enabled feature phone under ₹2,500 (approx).

The tech giant has also plans to bring down the price of future Windows Phone based smartphones. Currently, Windows Phones available in the market are priced higher than the Android smartphones with similar set of specifications. Apparently, Microsoft needs to improve on specs as well as bring down the price of devices in the Lumia range in order to

compete with the Android powered smartphones.

With Firefox OS joining the sub 2K smartphone race in India, competition in the the entry level segment has intensified. With a mix of improved hardware and software, Firefox devices could give a good competition to Microsoft in this segment.

Most importantly, the launch of the Android One series of smartphones will further drive the low-cost Android smartphones segment. Microsoft should tap this market right away, or else it might lose even before it starts competing. **d**

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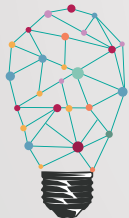
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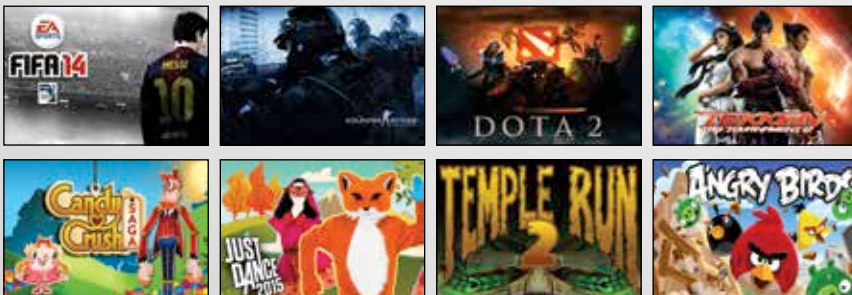
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### Cheaper solar cells

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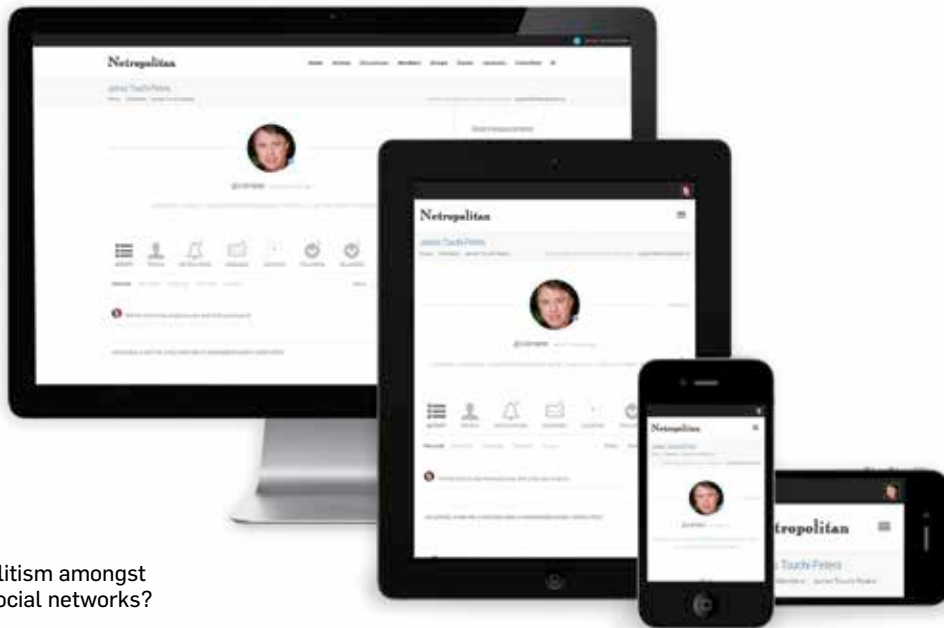


### Shopping with AR

Shopping for furniture using augmented reality will be a reality thanks to a startup named Vizera Labs <http://dgit.in/ARShopping>

# Social Networking evolves

and devolves the status-driven stupidity of the rich kids.



Elitism amongst social networks?

## The \$9000 status

Social network users today can be broken down into three types — those who use it actively, those who join social networks but don't really use it, and those who don't join any social network. That's it right? Well, think again. A new social network, called Netropolitan, caters exclusively to the rich. The tag line goes, "The online social network for those with more money than time."

Netropolitan requires a whopping \$9000 (approx. ₹5,50,000) to join and does away with the concept of 'adding friends'. Apart from the money, you also have to be above 21 to join this social network. Users are allowed to see everyone's posts and can create groups based on interests etc.

Facebook unlikely to open network to under-13s Of course, the \$9000 allows Netropolitan

to pass on the advertisements, which Facebook and others can not. The cost of being free you see. Netropolitan has been created by former Minnesota Philharmonic Orchestra, James Touchi-Peters. Oh and you will also have to pay \$3000 per year to remain on the social network, much like you do in a country club.

If you're thinking Netropolitan is an unique website, then you need to think again. There are others like ASmallWorld (Private International Lifestyle Club), Affluence (Your future awaits in the world's most exclusive digital country club) and Topcom, which is soon to launch for the next 200 world leaders.

The concept of social networking has been taken to a different level over the past year or so. Consider the many anonymous social networks like Secret, Confess etc. and nonsensical social networks

like Bencho that recently came up. Everyone is using them now, even terrorists, and the ideas keep getting wackier every day.

## Facebook trend feed

Facebook has tweaked its news feed algorithm to take into account how timely a post from a friend or a Page is when

deciding whether to show it. According to tests, the new posts have seen a 6% jump in user engagement. Facebook says that the changes will be rolled out gradually over the next few weeks.

According to a blog post, Facebook's News Feed will now track the latest trends and display posts related to those topics more quickly. For example, if a newly-released movie is trending, Facebook may prioritize posts about that movie because they are more current.

Facebook sponsored stories to appear in news feed The new algorithm will take into account how likes and shares of a post trail off when deciding whether to include in your News Feed. If the engagement dies down, Facebook will take it as a sign that the post is now less relevant.

Company software engineers Erich Owens and David Vickrey stated in a blog post, "This means that when a friend or Page you are connected to



Facebook adding more privacy and security to file sharing

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## Long-lasting wearables

To make smartwatches and wearables last longer, a new low-cost microchip design by Ineda Systems might be the solution <http://dgit.in/InedaChip>

## Building the Iron Man suit

We all want the Iron Man suit to be real, but how close are we in building one? Read on to find out what might be possible and what cannot <http://dgit.in/ReallIronManSuit>

posts about something that is currently a hot topic of conversation on Facebook, that post is more likely to appear higher up in News Feed, so you can see it sooner.”

Facebook is constantly testing new features to improve user engagement. The social networking site recently tested opening web links on built-in browser on Android app. After the recent Android update, several users reported app opening external links from their timeline and news feeds in its own built-in browser window.

### YouTube offline

Google has announced that YouTube will be available to users in Offline mode in India in coming weeks. This means, users will be able to download videos in the YouTube app when they are connected on Wi-Fi, and view it later without a data connection.

The feature will be useful in India which has the slower internet speed, poor 3G connectivity and expensive data plans. With YouTube Offline, users would be able to see their favourite videos while they are connected to the faster Wi-Fi network at home, re-watch it offline according to their convenience. Google has mentioned the exact details yet and has not specified if there is a restriction on the number of videos you can download. With unlimited video viewing users may never have to pay for data charges again and how will Google earn advertising revenue from offline videos remains to be seen.

A Google spokesperson stated, “YouTube is popular here. You watch some videos again and again. How awesome would it be if you could keep watching them again and again without having to pay for data, and take the videos with

you wherever you go?” said YouTube executive Ceasar Sengupta at the event. “Within the coming few weeks, much of YouTube will be available offline in India. This is huge, and our users will really, really like this. You can download a video once, save it to your phone, and watch it again and again.” Google made the announce-

sents each of the users close contacts, and to share with someone, users will simply need to tap on their tile. However, whether the app will actually be launched still remains to be seen. When reached for comment, Facebook replied with its standard “We do not comment on rumours or speculation.”

It is unclear if Moments

Microsoft is marketing the offer specifically for new iPhone users or those upgrading to iOS 8, but state that the extra space can be claimed by Android and Windows Phone users, too. The blog post mentions that this limited offer is available to users if they sign up before September end.

Microsoft wrote on its



YouTube to make its offline feature active in India

ment along with the launch of three new handsets under its Android One initiative.

### Moments remain private and secure

Facebook, which has constantly been criticized over privacy issues, is now reportedly testing a new app called ‘Moments’ that will make sharing images and other items with close family and friends easy and more secure.

Privacy and frequent redesigns have constantly frustrated Facebook users, according to sources the aim of the Moments app will be to make it easier for users to share content that they’d normally be nervous about posting on Facebook and make it simple to share with your family and friends.

According to sources, the app is currently being ‘dogfooded’ by Facebook employees. Reports suggest that the app will have a grid of tiles that repre-


would be integrated with Facebook groups or will be a standalone app. Facebook has previously created standalone specialized apps like Facebook Paper, a social news reader iPhone app with a unique user interface and Slingshot for sending ephemeral messages.

According to reports Facebook is also testing self-destructing posts, which will let users schedule posts for deletion. A Facebook spokesperson confirmed testing the feature: “We’re running a small pilot of a feature on Facebook for iOS that lets people schedule deletion of their posts in advance.”

### Double the Drive!

Microsoft has announced that it will be doubling the storage space on OneDrive from 15GB to 30GB as a limited period offer for users across all platforms. To get the extra storage space users have to auto enable upload feature for your camera roll.

blog on Friday “Tonight, we are pleased to announce that we are doubling the amount of free storage you get with OneDrive. All you have to do is sign up for OneDrive and activate the auto upload feature for your camera roll sometime between now and the end of September, and you will get 30 GB of free OneDrive storage moving forward (15 GB base and 15 GB camera roll bonus)”

In June, Microsoft has doubled OneDrive’s initial free offering from 7 GB to 15 GB to match Google Drive’s starting space. Now with 30 GB free space, Microsoft’s OneDrive is at the top of the storage space race versus both Dropbox and Google Drive. Google Drive offers 15 GB space and an additional 10 GB to users if they installed Quick-Office on Android and iOS as a promotional scheme. Dropbox offers only 2 GB of free space on sign-up, which can be extended to 5GB with various features. 



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# Indian Apps Galore!

As Android reaches ever higher levels of popularity in our country, Indian devs are hard at work developing some pretty neat apps. Here are five new apps developed by Indian studios.

Team Digit  
[readersletters@dgit.in](mailto:readersletters@dgit.in)

**Wynk Music**

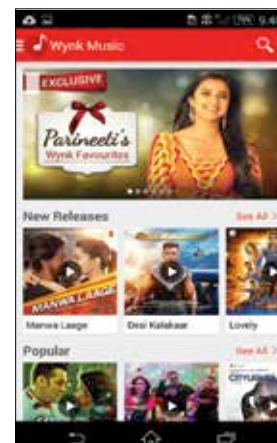
**B**harti Airtel has forayed into the music streaming/download segment with a new cross-platform application called the Wynk. The application is already available on Android and iOS platforms.

Airtel will be rolling out the service on desktop soon, though the operator has not given any timeline. Wynk is very similar to music streaming services such as Hungama, Gaana and Saavn. The application features over 1.7 million songs across 8 languages (Hindi, Punjabi, Bhojpuri, Tamil, Telugu, Kannada and Bengali), ad free music experience, stream, download, share, set hello tune of any song. Another highlight of the app is the human curated playlists,

which Airtel claims are based on moods.

Wynk Music app is available in three versions, basic Wynk, Wynk Plus and Wynk Freedom. First up is the free version of the application, which allows users to stream songs of their choice online and tune into internet radio.

With Wynk Plus, users get unlimited in-app song downloads and play music offline at Rs. 99/- on Android and Rs. 60/- on iOS. Airtel customers using



Wynk Music on Android

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## Netflix on Ubuntu

Linux could soon have native Netflix support coming to those using the different distros



## LG sets Guinness World Record

A billboard advertising the LG G3 makes it the world's largest outdoor advertising structure according to Guinness  
<http://dgit.in/LGRecord>

Android phones are offered a special introductory price of just Rs. 29/- on this.

Wynk Freedom subscription at Rs. 129/- is available to Airtel customers in 3G circles using Android phones which allows them to get all-inclusive unlimited streaming and download of music without incurring additional data charges.

Optimisation for different networks, especially the slower 2G network is another important factor that could drive Airtel's Wynk growth in India. Airtel has already confirmed it is working to optimise the application on the 2G network.  
 iOS: <http://dgit.in/wynkios>  
 Android: <http://dgit.in/1mafNuE>

## Incredible India WoNoBo Walking Tours app



Incredible India WoNoBo walking tours app lets you experience a turn by turn walking tour from the convenience of your phone screen. The app lets you take walkthroughs of important places in cities like Agra, Ahmedabad, Bangalore, Bhopal, Chandigarh, Chennai, Delhi, Goa, Hyderabad, Jaipur, Kolkata, Mumbai, Pune and Surat. Every walking tour also lets you know where you can shop and relax during the tour.

We tested this app on a Blackberry Z3 and it worked well without hiccups. The only issue we had with the app was the 360 degree shots in the tours were low res which was a let down. All tours in the app are incorporated with 360 degree views along with turn by turn navigation. The Wonobo app was developed in collaboration with Indian Ministry of Tourism.

These self-guided tours you

get in the app are very handy when you go visiting a new city as you can go out on your own in a new city and manage to visit important places and monuments. The Wonobo website lets you have the same experience and can help you plan a visit. It also lets you see advice and



Put on your walking shoes to try out the Incredible India app

expert comments from writers, travel experts and historians.  
 Android <http://dgit.in/XBpFln>  
 Blackberry <http://dgit.in/YRF2Y7>

## Bencho



Available for: iOS, Android  
 The Google Play Store has a lot of apps that are designed exclusively for India, but perhaps none that are quite completely Indian. An Indian derivative of the anonymous social networking app Secret had recently been seen in Confess. There are others like Zomato etc. that cater to our various needs. Perhaps none of them though is as Indian as Bencho. The new app has been designed by a group of ex-IITans who describe it as the newest application for the inap-



Let the nonsense begin

propriate. If you're wondering, yes, the name does refer to the infamous cuss word.

The app is a lot like Yo, instead in this you can send a Bencho instead of Yo. But Bencho is not text based. You can record your own 'messages' and send them to your friends. The app automatically reads your contact lists and adds your friends who are using the app. You can also share text and images on the public feed for people to see.

The UI looks quite similar to what you find on Secret and Confess but you can switch between the 'feed' and 'beep'. The beeps allow you to send the voice messages, while the feed allows you to post text. It also lets you share posts on Twitter, Facebook and WhatsApp.

In essence, Bencho is a social network with a small twist. The Google Play description says, "Bencho is your breaking news source. It breaks news round-the-clock with Bencho twist i.e. in your lingo with a dash of humour. So, when you are on the app you are never short of news and everyday Delhi humour." Android: <http://dgit.in/1u0zHL0>

## Walk me up



If you consider yourself lazy and have issues waking up in the morning or are afraid of forgetting important tasks then the Walk Me Up app is for you. It has a user friendly interface packed with unique features that help it stand out amidst other similar applications available in the market.

When you set an alarm this feature does not switch off the alarm until you walk the predefined number of steps. This feature is set by default to 10 steps but you can change the steps according to your convenience (or, more ideally, inconvenience). We found that this feature worked very well and was very accurate. It also has a sensitivity option for better accuracy.

The evil mode feature disables the snooze button so that until the steps are walked the alarm won't stop. Among other things, the app also lets you select a song from your library to set as your alarm and comes with standard alarm features such as repeat, labels and volume.

There is an ad-supported free version as well as a Pro version available on the Google Play Store. The Pro version is available for \$1.99 (Rs. 120 approx.). Also, the free version offers in-app purchases for a few additional features such as Volume crescendo, Max number of snoozes, Remove ads. To download head on over to: <http://dgit.in/1s6f3JL>



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## Robots can feel

From MIT and Northeastern University, researchers are developing sensors that would let robots see what they are touching <http://dgit.in/FingertipSensor>

## Rise of Precrime?

Researchers are trying to predict crimes in London using cell phone data. How? Find out: <http://dgit.in/PredictingCrime>

# En Garde!

As internet security becomes a major concern, users need to be more careful than ever

## Requests for user data rise by 150% in 5 years: Google

Transparency reports from Internet companies indicate that governments across the world are trying to access your information and even asking to take down content they deem objectionable. Considering how upfront and transparent users and Internet companies are, you'd expect the number of such requests to decline over a period of time. Unfortunately, the number of requests have grown, and not by a negligible figure but by a whopping 150 percent in the past five years.

This is one of the statistics from Google's 10<sup>th</sup> transparency report, that reveals yet another sharp increase in the number of government user data requests since Google's first report in 2009.

The search engine giant revealed that it received 32,000 requests in the first half of 2014 – up 15 percent from the

previous report. Google stated that it provided some data in 65 percent of the cases. The highest number of requests were made by governments in the US (12,539), followed by Germany (3,338), France (3,002) and India (2,794). U.S. saw a 19 percent increase in the first half of this year compared to the previous six months and up nearly 250 percent since 2009.

## Indian Govt. spying on users?

A recent Software Freedom Law Centre (SFLC) report called 'India's Surveillance State' claims that the Indian government has violated the privacy of over one lakh users in a year.

The report was presented at the Internet Governance Forum held in Istanbul. Conducted by SFLC, a non-profit legal services organisation, the study was prepared on the basis of RTI replies given by the government, which included replies to 26 companies who expressed interest



Are we all being spied on?

in setting up Internet monitoring systems for the central government. These included companies offering "far more potent surveillance technologies including phone interception, social media network analysis and data mining and profiling".

"On an average, more than a lakh of telephone interception orders are issued by the central government alone every year. On adding the surveillance orders issued by the State Governments to this, it becomes clear that India routinely surveils her citizens' communications on a truly staggering scale," the 68-page report said.

The state surveillance of citizens' private communications is authorised by legislative enactments such as the Indian Telegraph Act and the Information Technology Act that allows Indian law enforcement agencies to closely monitor phone calls, messages, emails and general Internet activity on a number of grounds.

However, India is yet to put into place a legal framework explicitly for protecting individuals' privacy.

## Govt. may ban Gmail, Yahoo! email services for official use

India's Department of Electronics and Information Technology (DeitY) has proposed to

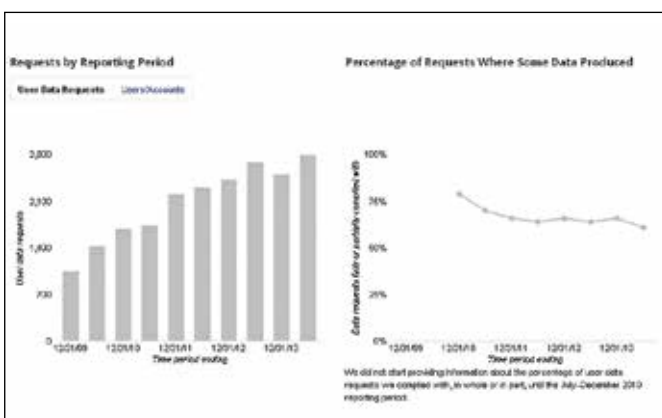
ban foreign email services such as Gmail, Yahoo! Hotmail, etc. for official use to safeguard critical and sensitive government data.

According to sources, all Government communications, apart from those of Ministry of External Affairs and Defence, may soon be carried out on the platform by NIC at nic.in. The Defence Ministry already has its own separate secure email server and the External Affairs may soon follow suit.

The proposal has been made to protect the large amount of critical government data that gets exchanged. The policy will cover over 5-6 lakh central and state government employees. At the time of writing, the proposal will be presented by DeitY for cabinet approval by the end of September.

DeitY will require about ₹4-5 crores to update NIC's infrastructure and ensure smooth working of the NIC platform. Apart from that, a total investment of around ₹50-100 crores would be required for full operationability of the policy. The proposal has been made amidst concerns about rising cybercrime and hacking incidents. Recently, five million Google usernames and passwords were leaked online by Russian hackers.

Last year, a similar proposal



Summary of requests from India



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## Invisibility cloaks?

Rice university has developed a squid-like colour display that may eventually bring on the possibility of invisibility cloaks <http://dgit.in/SquidColour>



## Samsung PayPal

Rumour has it that Samsung and PayPal are going to get together for smartwatch payments <http://dgit.in/SamPayPal>

was submitted, banning central government officials from using Gmail, Yahoo! or any other email services based abroad to prevent transfer of data. The submission was made before the court following a petition filed by former BJP leader N. Govindacharya stating that the use of email accounts whose servers were outside India and the transfer of the nation's official data using this medium was a violation of the Public Records Act.

## 50 lakh Gmail account credentials leaked

Almost 50 lakh usernames and passwords of Gmail users were leaked on a Russian forum, although Google denied any breach in its servers. The Russian forum admins have now removed all the mentioned passwords and have only left the usernames on the page in question.

Speaking to The Next Web, a Google spokesperson said that the company had no evidence to believe that its servers had been breached to procure the user information; and if it did, it would have informed users immediately.

The leaked usernames themselves seem to point towards primarily English, Russian and Spanish account holders and, according to The Next Web, seem to have been accumulated over time.

## Android security flaw affects millions of users

Security experts have discovered a new flaw in Android which allows attackers to run scripts that can read the contents of any open tab and harvest private data. The security flaw affects Android devices running any version prior to 4.4.

The flaw was first reported

by ethical hacker and blogger Rafay Baloch, who has tested it on a variety of devices. Since then, his findings have further been confirmed by others in the security industry. According to Google's own analytics, this affects at least 75 percent of all Android users as a very large proportion of new phones also ship with Android 4.3 or lower.

According to reports, the problem relates to the Single-Origin Policy, a security measure, which can be bypassed in Android browsers by deliberately feeding it a malformed instruction which allows scripts to be run without supervision. This simple exploit allows attackers to read data even from secure sites once they're opened, and redirect the data to any external site.

## One in five families lose money or data due to children on the internet

According to research conducted by Kaspersky Lab and B2B International, 21 percent of users have lost either money or important information as a result of their children's online activity. This figure doesn't include the risk of cyberthreats faced by children.

According to the research, 44 percent of respondents believed their children know little about computer tech-



Kids on their parents' devices cause unexpected losses

nology and 35 percent said that their kids knew nothing of cyberthreats. It is this lack of awareness that poses risks for parents who allow their children to use their online devices. Respondents (12 percent) said their children had either accidentally deleted important information, or caused them to deal with unexpected bills from app stores (6 percent) after their youngsters went online. All in all, every fifth polled parent confessed to the experience of having lost money or important data because of their children's actions.

Despite this, only one-third of parents are really alert to the danger. Just 32 percent are concerned that their children may spend money online without parental consent, and only 27 percent are worried that their kids share confidential information too freely online. At the same time, the parents use various methods to avoid problems

and protect their children from online threats. For example, 39 percent personally control how their children use devices, and 13 percent asked their Internet provider to block access to certain sites.

In addition, 38 percent of parents regularly reminded their children about the dangers of the Internet, while 19 percent opted to befriend their children on social networks. It's astonishing that only 23 percent of parents use specialised software to regulate their children's online activities, despite it being a convenient feature available in many security solutions.

"When parents think of their children spending time online, their first concern is to protect them from unwanted content on the web. However, there is another important aspect that should not be forgotten, and that is the problems kids may cause for their parents. Applying parental control is not showing distrust to your child; it's a sensible precaution with which you can, among other things, protect your device and the data on it. Interestingly, it also works the other way round: adult children might use these kind of software products to help older parents who know little about cyberthreats," said Konstantin Ignatev, Web Content Analysts Group Manager at Kaspersky Lab. **4**

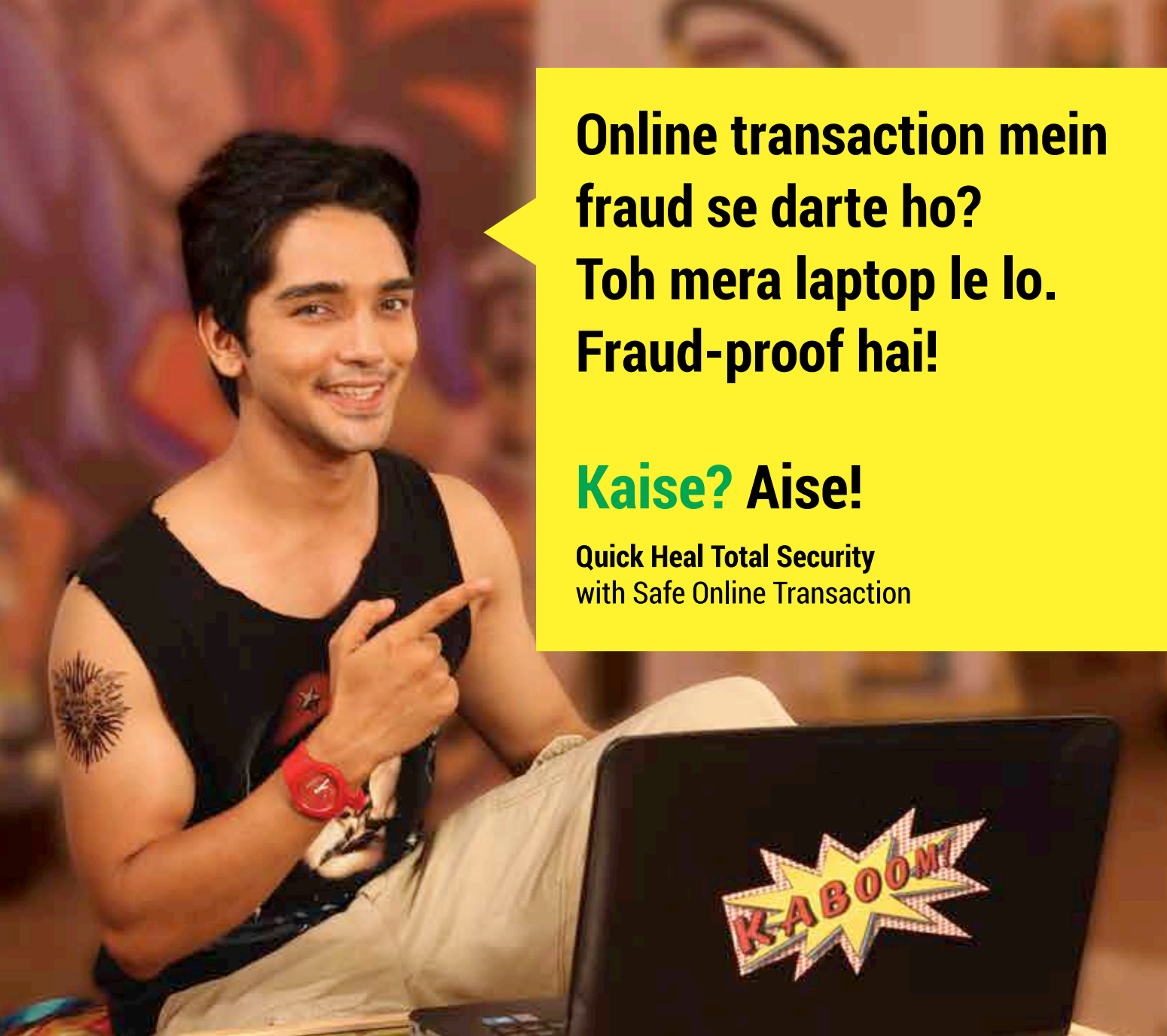


The flaw affects Android devices running older versions

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### Feature

We bring you highlights from the IDF 2014 and also a sneak peek of the new Dell Venue 8

### Geek Life

Think it's easy to make hundreds of thousands of dollars online? Find out in our Geek Life section



## DJI Phantom 2 Vision+

In the world of non-military, consumer quadcopters and aerial drones, it doesn't get better than the new DJI Phantom 2 Vision+. It captures 1080p HD video thanks to a built-in camera without any stutter, thanks to a built-in gimbal with 3-axis electronic stabilization. It's an intelligent flying machine that can fly itself, has a GPS receiver, and can offer a bird's eye view real-time footage through an iOS or Android app-enabled smartphone hooked to its remote controller which is constantly in touch with the quadcopter through its local Wi-Fi network. If ever you needed a top-notch RC quadcopter purely for the sake of launching it up to a 1000 feet vertically and over 2000 feet in any other direction and capturing breathtaking video, this is surely it.

# Exit kites. Enter drones and copters!



## Parrot AR Drone 2.0

A notch below the DJI Phantom in terms of specs and features, but just as much fun in the air, is the Parrot AR Drone 2.0. Built from high grade nylon plastic parts and carbon fibre tubes, this 380g mini drone is easy to assemble and service and has four brushless motors. It has a 720p HD camera to record photos and videos, apart from running on a 1GHz Cortex A8 chip and sporting an assortment of connectivity options. It has a magnetometer, accelerometer and gyroscope, and can be controlled through a compatible smartphone or tablet app in real-time. It can reach a maximum altitude of about 200 metres.



### Buy your creed

e-xpress is launching two figurines from Assassin's Creed Unity, the price for one figurine being ₹3,999

### Secret new music format

So that you will buy albums and not illegally download them, Apple and U2 are working together on a new music format <http://dgit.in/NewMusicFormat>

Drool maal

## Hubsan H107D FPV X4 Mini RTF

The X4 Mini from Hubsan was a raging success, despite lacking a core feature: a camera. All that's fixed in the H107D FPV (first person view) Mini quadcopter which puts the proverbial cherry on top of an already delicious cake!

This palm sized drone can now beam a live picture feed directly to the LCD screen-equipped remote controller. You can also record the visuals on an SD Card (and download it on to your PC later) as you fly the quadcopter upto 100 metres in any direction. Additional features include 6-axis flight control system with adjustable gyro sensitivity and four night LED lights & rubber feet for dampening its fall as it lands. A great quad to own if you can't afford the more expensive ones and still have oodles of fun!



## Extreme Fliers Micro Drone 2.0

Another update to a winning formula that gives eyes to this tiny robotic bird in the sky. Sporting a robust, modular design (which claims to withstand most crash situations), the Micro Drone 2.0 uses four traditional motors to ascend into the air. Equipped with a wide-angle lens camera that can shoot 720p HD vids onto a microSD card, the Micro Drone 2.0 can really go past 100 metres and perform a variety of flips and stunts to humour your and your audience. Can't really say how well this fly outdoors on a windy day, but for indoor flying (in and around your house) this byte-sized wonder promises to keep both kids and adults entertained by its capabilities. Also, it's quite inexpensive!



## Pico Falcon

As far as consumer-grade RC aircrafts are concerned, this one takes the cake, sheerly because of its tiny size. The Pico Falcon calls itself the "world's smallest remote controlled helicopter," and it's far from just a kids' toy. Measuring just 46mm in length, the Pico Falcon's infrared controller is several times larger than the flying aircraft. A Japanese product, it's unlike any quadcopter or flying drones, in terms of design – it's pretty unique that way. However, it has one drawback: Every four minute of flying needs thirty minutes of battery charging time, which can be a bit of a dampener for enthusiasts.

However, for novelty value, we encourage you take a serious look at this device – since it only sells for \$45.







### Turbocharging for higher yields

New photosynthesis techniques have been discovered that will dramatically improve crop yields  
<http://dgit.in/TurbochargedCrops>



### Motorised exoskeleton

Researchers have developed a soft, lightweight exoskeleton at Harvard that could help soldiers and stroke victims  
<http://dgit.in/MotorPants>

# Intel Developer Forum 2014

An overview of what to expect from Intel in 2014-15

Soham Raninga

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Intel Corporation CEO Brian Krzanich kicked off Intel's annual technical conference with a clear focus on new markets such as wearable tech, mobile and connected devices.

While Intel continues to push the limits in traditional computing spaces, the focus of this year's IDF was clear – Intel is going after the new device categories and is preparing to develop the hardware and software development kits (SDKs) that will empower developers and manufacturers to quickly integrate its latest solutions into mass market products for new device categories. At IDF 2014, Intel outlined its plan around the new initiatives and products that are well beyond the traditional PC space.

No, they aren't ignoring the PC space, showcasing new Core M based hybrid PCs with fan-less design and a glimpse of the Skylake platform is an assurance of the fact that they will continue to press for dominance in the microprocessor segment, while targeting to enter several other segments.

## Intel Reference Design for Android

Intel Reference Design for Android is the company's strongest signal so far about its seriousness towards mobile devices and the Android platform. You will see a lot of Intel based Android tablets and smartphones in 2014-15. Intel revealed its new Android Reference Design program for tablets, allowing manufacturers to quickly adopt Intel's x86 based SoCs. Intel seems to be very confident about its reference design program, promising Android



Highlights from IDF 2014

updates within two weeks of Google making new releases available. Intel plans to do this by providing a single binary image and providing a list of pre-qualified components for tablets and phones.

At the event, we had a chance to play with Intel Merrifield and Moorefield based smartphones and tablets from Asus, Dell & Lenovo. Merrifield and Moorefield are based on Intel's 22nm SoC process; Merrifield houses two Silvermont cores with 1MB shared L2 cache and is aimed primarily at smartphones while Moorefield has 4 cores and 2MB shared L2 cache. These SoCs are offered for mid-range and budget devices priced within \$500.

One of the new markets that Intel has on its radar is wearable devices and it's doing so with MICA. MICA (My Intelligent Communication Accessory) was first unveiled at Fashion Week in New York and Intel discussed strategies and game-plans for the platform at IDF.

Intel CEO, Brian Krzanich defines MICA as "This is something you want

to wear independent of the technology inside and when you realize what the technology inside is, you've got to have one". While Intel hasn't revealed much on the core technology aspects of any of its wearable device initiatives, the MICA Smart Bracelet claims that it "allows you to stay connected via SMS messages, meeting alerts, and general notifications delivered directly to the wrist, with additional features and functions to be revealed at a later date."

Intel also announced its partnership with American watch and fashion accessory brand– Fossil. While there weren't any smart watches announced or demoed at the event, one can expect smart devices and watches from this partnership soon, especially after the announcement of Apple Watch.

## Empowering 'Makers' with Edison

Apart from developers, Intel is targeting the inventors/builders segment, coined



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## Carbon-capture plant coming

The FutureGen project intended to capture carbon from a coal-fired power plant begins construction. Read about it here <http://dgit.in/FutureGenBegins>

## Lighter and Stronger planes

A new, lightweight material has been discovered and will redefine the way we build aircraft and even trucks. <http://dgit.in/NanoMaterial>

as 'Makers', with Edison. At IDF, Intel announced the availability of Edison, priced at \$50 for the core module. Edison uses a 22-nm Intel Atom SoC, with a dual core, dual threaded CPU running at 500 MHz along with a 100 MHz 32-bit Intel Quark processor.

Edison houses 1 GB of LPDDR3 RAM, 4 GB EMMC storage and a dual-band WiFi and Bluetooth Low Energy chip. Yes, Edison is a 'nano' computer that is as tiny as a postage stamp (approx. 1x1 inch). Intel sent the first wave of Edison modules to students, asking them to build and invent concepts and products that take advantage of Edison's capabilities. We spoke to Edward Ross, Senior Director of New Devices Group on Intel's plan on introducing Edison in India and how they plan to encourage young Indian inventors and students to dabble with Edison and create/build unique connected devices. Edward confirmed that Edison will be launched in 65 countries by end of 2014 and India is a part of their November launch schedule.

## Intel Core M: Mainstream performance in super-slim, fan-less tablets and ultrabooks

The Intel Core M series is built on Intel's latest 14nm Broadwell-Y architecture that enables fan-less designs, allowing hybrids, PCs and tablets to be a lot slimmer, quieter and power efficient. The Core M chips operate in a 4-6W TDP power envelope, allowing OEMs to select a solution that is most suitable for their device category.


What does Core M mean for you? Intel Core M will enable true hybrid PCs and bring high performance to tablets. Intel showcased some of the early hybrid fan-less designs based on the Core M platform and we can safely say that they were far more appealing and usable as compared to the first generation of hybrid PCs which were heavy, clunky and noisy. Just to get things in perspective, Intel Core M will deliver



The Edison board

12-15 hours of battery life and 8-hours of video playback on a single charge. All this on slim and light hybrids/tablets measuring between 8-20mm in thickness!

## Skylake in 2015

New micro-architecture, Wireless charging and 4K WiFi streaming. Skylake will be the follow up to Broadwell, scheduled to make its debut later in second half of 2015. The 14nm Skylake will bring a new microprocessor architecture as a follow-up to Broadwell, which is a die-shrink. Skylake will come with embedded wireless charging and wireless streaming support and will combine with all-in-one desktops with built in batteries to offer a truly wire-free experience. That's the plan and while native wireless streaming support is very much on the cards, wireless charging will need a heavy industry push to make wireless charging technology ubiquitous. 

## WORLD'S SLIMMEST TABLET: DELL VENUE 8 7000 SERIES WITH INTEL REAL SENSE TECH

At a mere 6mm, the newly announced Dell Venue 8 7000 series tablet is among the world's slimmest tablets. Apart from the form-factor, the Dell Venue 8 is the World's first tablet to offer Intel Real Sense technology along with an 8.4-inch 2K OLED display. We tried out the Dell Venue 8 at the Intel IDF 2014 and came out impressed.

### 1. IMPRESSIVE FORM FACTOR

The first thing you notice about the Dell Venue 8 is its razor-sharp and vibrant 8.4-inch OLED display. It's a 2K panel offering a 2560x1440 pixel resolution. While 2K displays don't really make their presence felt in case of smartphones, on an 8.4-inch screen, 2K goodness is clearly evident when compared to 1080p screens. Running on the very latest version of Android KitKat, the Venue 8 houses a quad core Intel Atom Z3500 series SoC (processor) based on Intel Moorefield platform.

### 2. INTEL REAL SENSE 3D TECHNOLOGY

The Dell Venue 8 houses 3 cameras at the back, an 8MP primary camera along with two 720p cameras that are used to calculate and



The Dell Venue 8 in action

measure the depth. When capturing photos, apart from selective focusing, the Intel Real Sense platform offers numerous other possibilities like measuring dimensions of an object or creating three dimensional photos by introducing interactive elements in a photo via depth sensing and mapping techniques. With the Venue 8, Intel is inviting developers to use the Real Sense platform to develop interactive apps that can leverage the full potential of this platform.

### 3. DESIGN AND AESTHETICS

The build quality and finish feels premium

with good attention to detail. Thanks to the clean edges and a matte finish, the Dell Venue 8 looks sharp and bares a distinct personality when compared to Samsung and Apple tablets.

While we aren't sure about the exact weight, the tablet is pretty light for an 8.4" device. The reduction in dimensions and weight can be largely attributed to the use of OLED displays, which are lighter and slimmer than LCD displays, while being more efficient.

### 4. FIRST IMPRESSION

Overall, the Dell Venue 8 7000 series does impress us on first encounter. The Intel Real Sense camera technology is clearly a sign of cameras and imaging technology progressing beyond the realms of regular still imaging and video. We should see the tablet hit the Indian market soon; currently there is no word on the pricing, we estimate the price to be in the \$400-\$500 range in the US.

Visit [dgit.in](http://dgit.in) for our detailed hands on and demo of Intel Real Sense technology on the Dell Venue 8 tablet.

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### NASA's Space Taxi

NASA strikes a multibillion dollar contract with Boeing and SpaceX for a Taxi <http://dgit.in/NASASpaceTaxi>



### Bochhi Tent for gaming

Respecting your privacy while gaming, Bibi Lab comes up with a tent that blocks out the outside world <http://dgit.in/BibiLab>

# Money for nothin'

## Is work from home a reality online?

We go on an investigative journey to discover if there is any truth to work from home websites in India.

Samir Alam

[readersletters@dgit.in](mailto:readersletters@dgit.in)

**D**id you know Sanjana in Lucknow makes \$545 every day working from home? Or how about Kamal in Trichy who earned \$1,328 per day just browsing the internet? That's amazing isn't it? That is about ₹33,000 and ₹81,000 per day for them respectively! Per day! That means in a normal work year Sanjana earns ₹80 Crore and Kamal earns nearly ₹2 crore. Wow! How do we get in on this action? Well, the reality is we don't – it's pure fiction.

Most people have come across reports of such successful fellow Indians while browsing on the internet. Displayed as embedded images on a number of websites we see the smiling jubilant faces of people holding up cheques with five figure sums. These ads tell the story of how easy and simple it is to earn big bucks while sitting at home and the best part – no special skills required. Any one can do it. Even you.

As a 16 year old killing time between junior college and tuitions it may seem like the perfect kind of gig to make some extra cash. Even stay-at-home spouses and unemployed freshers would find such an offer hard to resist. And so what if those numbers are an exception – yes not everyone earns tens of thousands every day. That would be absurd. But what if it was just a couple of thousand – for a day's work sitting in front of a computer at home. You'd be doing that anyway. It wouldn't be so bad, right? Well, we know the feeling. We've all been there. So we figured why not wallow into these dubious waters you may be



Sit back and watch the money roll in – balderdash.

thinking about diving into and investigate if the options out there are financial quicksand or a clear revenue stream.

### Succeed India: Of Scams and Ponzi Schemes

Let's get the obvious out of the way. Most of the schemes and deals offered online are straight up scams and frauds. In more sophisticated cases however, victims are caught up with con-artists who use inherent human weakness' to swindle them out of cash. Be it too good to be true get-rich-quick schemes or seemingly genuine online marketing assignments, there is always a catch, and thousands of people have fallen victim to them.

The infamous SucceedIndia website had it's heyday in the early 2000s where a bland poorly formatted HTML text page

convinced users to pay up ₹800 for an e-book which would teach them all the ways of making money online. The site also offered work in Affiliate Marketing (ponzi scheme) where users were required to recruit others in the promotion of no-brand products. Using the convincing jargon of Google AdWords and an unending barrage scans of high-paying cheques from Google, the website lured many victims. And even as the website remains active the scam has become all too transparent for anyone to actually fall for it.

Modern fraudsters don't just use pop-up ads or spam emails to lure their victims but go one step further by posting jobs on forums and online classifieds. These postings offer simple jobs like being an "email processor" – an online ponzi-type scheme where you are required to pay for



## A Raspberry Pi Laptop

UK-based designers build a Raspberry Pi laptop with completely 3D printed materials <http://dgit.in/BibiLab>



## Population numbers

A new report by the UN says that by 2100 the world population would be reaching to around 12 billion <http://dgit.in/PopuBoom>

Geek life

a start-up kit which essentially requires you to send out a similar job offer to others in the hopes of being paid for the same information kit. Jobs like “home assembly” of crafts or gadgets are also on the downturn since they require prospective workers to pay for a “test kit” which you need to assemble and send back for reimbursement and payment - which of course never comes because the assembly job is deemed to have been done poorly.

But thanks to the increased net literacy of users today most people know when something smells fishy. The most common types of tricks used in the early days of internet and email have been widely exposed. So for those who consider themselves net-savvy, many of these offers end up in their inbox trash or deleted with a snide guffaw. But amidst the many obvious scams there are still a few, well-crafted and very convincing websites that seem to be the real deal. In our investigation we decided to focus on such services aimed at Indians to determine if they are all out frauds or not.

## The Usual Suspects

We sifted through hundreds of classified listings, forum posts and even a few pop-up ads to find seemingly legitimate sources for online work from home jobs. Our criteria was very simple – they had to be “work from home”, they had to be non-investment schemes, they had to have clear language of communication and they had to have been validated on Google search.

In this respect we also employed other selection factors such as the detection of awkward template style writings in the emails, listings and advertisements to help us filter the obvious criminal candidates. We arrived at a sample of three priority websites that show up on the first page of Google searches for “work from home” or “make money from home”. They cleared all anti-virus safeguards for phishing, malware or risky portals and were clearly professionally designed. But it was one website that particularly caught our interest and went on to demonstrate the



They seem to be going for elegant white truly interesting and devastating aspects of work-from-home claims.

## FastRuppee & Neobux

The number one website in our investigation was FastRuppee.com. The sleekly minimalist design of this responsive webpage was a pleasant surprise after having delved through numerous gaudy websites. Completely free from banner ads or scream-out-loud claims of quick money the website is a completely professional portal perfect for an online business. As

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## No forced G+ Accounts

Now users won't be forced anymore to create Google Plus accounts while signing up for Gmail <http://dgit.in/NoGoogleP>



## eBay phishing season

Before you head out on eBay, you could land on a phishing login page spreading, nowadays <http://dgit.in/eBayPhishing>

we scroll down the pages most of our major concerns are assuaged – assurances than no investment is required, a recommendation service that filters out the frauds for the benefits of the user, compatibility with the Indian system and most importantly a disclaimer warning users not to expect riches very quickly but look forward to small regular returns, free of investment risk. Pretty well-worded and displayed, the website goes on to highlight its top recommendation for such an online employment company – Neobux. Claiming a long-established providence of over six years, quick and timely payment record and a host of success stories, the page goes on to use quirky and cute animated training videos to explain how FastRupee works and how Neobux processes payments. The page also has a brief FAQ in a simple and direct language. FastRupee is essentially a Paid-to-Click site which works as a referral platform for Neobux. The referred participants are paid to click on ads, take surveys, do online research and other stay-at-home functions on behalf of corporate clients that Neobux works with – so far so good.

Paid-to-Click isn't exactly an ethical realm of e-commerce, but the business model exists within a sufficiently plausible loophole to be considered a real business. FastRupee has a 'Contact us' page if users have any questions or clarifications, but the website's blog page only has three sparse

The screenshot shows the Neobux website dashboard. At the top, there's a navigation bar with links like 'Home', 'About', 'Contact', 'FAQ', 'Privacy', 'Terms', 'Help', 'Feedback', 'Referrals', 'Advertise', 'Partners', 'Affiliates', 'Sponsors', 'Investors', 'Recruiters', 'Employers', 'Advertisers', 'Partners', 'Affiliates', 'Sponsors', 'Investors', 'Recruiters', 'Employers', 'Advertisers'. Below this is a 'Main features' section with a table showing earnings data.

	Your clicks		Commissions from Direct Referrals		Commissions from Referred Referrals	
	Standard	Golden	Standard	Golden	Standard	Golden
Extended Exposure	\$0.015	\$0.020	\$0.0050	\$0.0100	\$0.0100	\$0.0200
Standard Exposure	\$0.010	\$0.010	\$0.0050	\$0.0100	\$0.0050	\$0.0100
Fixed Advertisements	\$0.001	\$0.010	\$0.0005	\$0.0050	\$0.0050	\$0.0100

Below the table, there are links for 'More Fixed Advertisements', 'Detailed charts', 'Higher return levels', 'Enhanced distribution filter', and 'Forum subscriptions'. At the bottom, there's a yellow box with the text 'Simulate the Golden Membership purchase in our Projection Center' and a 'Requirements list' link.

Neobux's website – smooth, classy and seemingly reliable

entries detailing how to obtain a PAN card, an investment based Paid-to-Click program and a step-by-step guide to earning money online. But all roads lead to Neobux, so we go tumbling down the rabbit hole.

## Curiouser and Curiouser

Neobux itself is a well-designed professional-looking website pared down for essential use. The three-column website displays the daily counter of registered members, ads clicked and money paid to users. Quick averages of the displayed

numbers indicate \$10 was paid per member per day (about ₹600) – working out to about ₹18,000 per month. Not bad for just sitting around and clicking on ads.

The registration is quick and easy with no alarms about details demanded apart from your PayPal or Payza account (optional). The clear and direct language followed by helpful indicators and pop-ups to guide you along every path. After verifying and logging-in to the Neobux dashboard we are treated to the layout of what needs to be done. Xick on "View

## FREELANCE ON VERIFIED SITES

Despite the vast number of fraudulent make money from home websites, there are a few which are legitimate. These websites don't refer to themselves as "work from home" websites, rather are promoted as professional freelance networks where people can hire professionals on a freelance basis across the world for short-term projects.

### WRITE AN E-BOOK

Do you have a flair for storytelling? If so then why not capitalise on your passions and write a digital book. As long as you can make it interesting to read you can write a digital book. Using any word processor you can put together a book of any length and publish it digitally on Amazon.com without any major hassles. Amazon makes your book available digitally (and print on demand in some cases)

### RUN A TOPICAL BLOG

The harmonious match between blog topic, writing and ads is what makes blogging a viable career for some. The topicality of blogs is unrestricted and whatever your interest might be – stories, poetry, travel, photography, gaming, reviews, food or politics – if you can get enough readers you will make money from AdSense.

### START A YOUTUBE CHANNEL

With YouTube's Google-powered ad service being directed on nearly every online video, why not make videos of your own with Google's money? YouTube videos that go viral are often approached by YouTube to become partners. They pay first time viral video makers on up to ₹1 lakh per episode under certain terms and conditions. It's a great way to make money and also break out into video, TV and movies.



## Watches oscillate – quietly

There's a new silent oscillator out there reducing the number of parts in a mechanical watch <http://dgit.in/SilentOscillator>

## Screen number two

Researcher teams at MIT develop a smartphone system that lets you use your smartphone as a different second screen <http://dgit.in/THAWProject>

Geek life

Ads” and you’re shown a series of categorised boxes with click value on them. All the boxes have the same price of \$ 0.001 and a single Bonus Pack. The bonus pack is like a lottery of three ads which you have to watch. Any of them could get you free rewards in cash or kind. More ads would only be shown to us once the system ‘reset as per their server’ (whatever that means). Bottom line: we’re out of ads and have to wait. In the meanwhile, if we’re interested in betting on the lottery we can go on to watch the 99 advertisements (which we do – no luck). Effectively, we’ve watched 132 ads for \$ 0.033 payment (₹2.01) since lottery ads aren’t counted towards payments.

### The prestige of the con

A few caveats: you can’t open multiple ads at once. You can’t go away from the ad window or else it will pause and resume only once you return. Not all ads are of the same length and you can’t withdraw money earned until you reach a minimum goal. The average time per ad is on average 30-45 seconds with a few reaching a full minute. Even switching to a VLC window to watch a movie will freeze the clock, so constant attention is expected. The minimum goal to withdraw is \$2, which would take 2000 ad views to reach. This translates to about 25 hours on non-stop clicking. There are, of course, ways out. Rent clicks, upgrade to Golden Membership or Rent Referrals. There lies the rub.

Never over-promising vast riches, providing a very clear means to perform tasks and keeping the task just easy enough filled with high degree of tedious obstacles – even the most enthusiastic time-wasters would feel better if they could just get some referrals or rented clicks. While on one hand the business of watching ads for pennies in payments is grossly under-paying, there is a long time investment before any payout can be expected. On the other hand, paying for Rented Referrals or Golden Memberships is a means to rent a part of other people’s clicks with no guarantee that the people whose clicks you’re renting are high performers. The fine print is masterfully used to defy all negligence or breach of legal expectations. Of all the websites that fell under our radar, FastRuppee and Neobux were the most perfectly pitched and most dangerous.

Even in the case of users who persevere through 2000 ads, we discovered that the payments were neither prompt nor easily obtained. Users were advised to redirect their funds towards the paid alternative. A review of online complaint boards led to reports of how the two dollars due for early-exit members was rarely ever paid. But even if it is paid, the amount would be ₹122 for 25 hours of work i.e. just under ₹5 per hour. The lowest minimum wage category in India earns over ₹20 per hour. Who wouldn’t feel compelled to rent clicks or referrals just so that the benefits of their underlings flows up to them? Except you aren’t told to directly interact with people and refer them to the website and doing it would place the liability of the scam on you, not the website.

### Now, meet the amateurs

No other website was as professional pitched as FastRuppee and Neobux - plausible, doable and an utter time-vampire that pays pittance (if at all) for countless hours. The nature of the “scam” relies on persuading people to eventually pay out of their pockets for clicks and a Ponzi-like referral system. Other websites that made our lists were BharatOnlineWork.com and MoneyMail.com, and they are sheer amateurs in comparison.

BharatOnlineWork although seemingly legit quickly devolves on its web page into a needy, persuasive, half-witted con-man who’s trying to somehow convince users to shell out ₹1,490/- for a “Bharat Online Work Package” - a CD (remember those) which reassuringly has to be paid for on delivery.

Our third candidate website MoneyMail.in was slightly more clever (even if, eventually, a massive let down). The website requires users a chance to get paid for reading emails along with a host of other activities like being a Recharge Wallet agent - who will earn .5 to 1.5 percent on transactions when making recharges for cell phones, DTC and Data Cards. Participants simply need to deposit ₹500 or more via direct bank account transfer with no online payment gateway involved. If things weren’t fishy already we just hit the sushi bar on this one. Both BharatOnlineWork and MoneyMail use the same techniques used by other

notorious online portals like EarnPart-TimeJobs.com, Emailpays.com, Adsensejobs.com, Netjobs247.com and Emailreadingjob.com to lure unsuspecting customers. Most victims aren’t fluent in English and the perpetrators take advantage to confuse and convince them. More refined sites like Neobux prey on the inevitable boredom of users and offer short-term payoffs to lure users to make high value purchases. In both cases the users are encouraged to recruit others as a means to enhance their own earnings through referral.

### What Have We Learned?

It’s a case of old wine in a new bottle, where the wine is poisoned and the bottle is a Molotov cocktail. If it seems too good to be true it probably is – a cliché, but true. Age-old scams are reinvented in the digital age to prey on the hopes of needy and desperate people. In times when getting a job is tough and even the employed are looking for a side income, it makes sense that these schemes bear fruit for online criminals. For a metropolitan internet-savvy user this may not prove a temptation but for the majority of people across the country this is proving to be a real danger. Thousands of rupees are sent by each person to these websites in the hopes that they will be able to find a sustained income for their future.

And despite how obvious and devious these fraudulent websites may seem, it has proved near impossible to punish or ban their promoters. Given the weak and obfuscated parameters of the Indian IT law and the understanding of the Internet by government officials the progress is slow. In many cases the URL domains are private and registered abroad with only the local bank account information being real. However, these accounts are under legal protection so that the account holder’s identity can’t be disclosed and banks can’t punish account owners unless a case of fraud has been registered.

In the end, the discouraged and financially desperate victims are left with no recourse but to absorb their losses and move on – which is exactly what these schemers are hoping for all along. When the process for persecuting the guilty is more complicated than the fraud itself, we can all agree that someone radically needs to bring justice to the system. ■





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- ✦ An introduction in the magazine
- ✦ A free subscription to our e-mag
- ✦ Digit branded goodies
- ✦ A certificate of membership to showoff
- ✦ A warm fuzzy feeling inside
- ✦ Fame and the adulation of your peers

\* We don't guarantee this, but hey, if you happen to get a million, remember, half is ours!

## What we expect from you

Club members need to submit at least one article a month to keep their membership alive. You even get to choose your own topic– the only constraint is it should be technology related (obviously!).

**Interested? Visit [digit.in/writers\\_club](http://digit.in/writers_club) to register**

# Here's the next set of wordsmiths



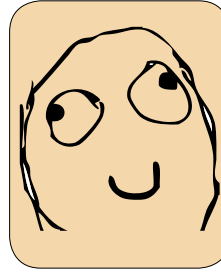
## Nikhil Nagvekar

Article submitted:

### Technology vs. imagination



This shooting graph of technological development has led to a difference between the generations dividing the people as technological immigrants and technological natives."



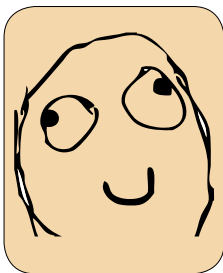
## Pradeep Kumar

Article submitted:

### Keep calm and do contribute



You use open-source softwares now and then in your daily life. These open-source softwares are developed and maintained by community of developers and enthusiasts spanned across the globe."



## Harsh Dev

Article submitted:

### Surveillance Revelations



What can force aguy with a respectable job in one of the most powerful government agencies to go rogue? Unless he feels the people he has been working for are doing something wrong, illegal, unethical perhaps



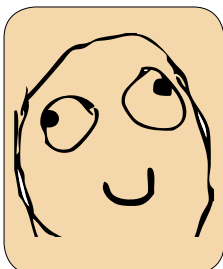
## Ankit Singh

Article submitted:

### Google: Search Giant



When you sit down at your computer and do a Google search, you're almost instantly presented with a list of results from all over the web. How does Google find web pages matching your query, and determine the order of search results?"



## Prasham Parikh

Article submitted:

### Technology: A help or a handicap?



Amputees can now walk with the help of prosthetic legs, the deaf can now hear with the help of hearing aids and even Stephen Hawking who couldn't speak previously can now speak with the help of a specially designed computer."



## Chetan Madan

Article submitted:

### Android L's material design



Android L will bring with it an inherent focus on colours, interactive shadows, and superposed elements. Here's how you can benefit from its visual benefits, novel or otherwise."



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**SHOP SMARTER ONLINE.....51**  
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**GET THIS ISSUE AND CLEAR UP  
ALL THE CONFUSION**

## ABOUT WHAT TO BUY THIS FESTIVE SEASON





**T**he way we shop has radically changed over the last decade. With the mushrooming of malls, branded stores and high couture outlets there is no dearth of options for the Indian consumer. With all the emerging options in variety and selection it comes as no surprise that the Indian online retail industry has also seen a radical surge in growth. With options galore for everything under the sun including furniture, electronics, books, groceries, appliances and entertainment, there is scarcely any item that can't be yours in just a few clicks. However, being of the prudent Indian consumer variety isn't all that it's cracked up to be – what about bargains? The Internet may open up new avenues of consumption but can it really replace the secret thrill of a good deal?

Many websites over the last few years have played around with providing Indian customers with everything they could ever want including bargains. The early eBay India user would remember the highly publicised auctions that inevitable went nowhere and didn't really satisfy the urge for a fairly (or unfairly) won bargain. Indian consumers are culturally drawn to getting under the radar when it comes to

**Learn the tools, tips and tricks necessary to make you the best bargain-hunter you can be when shopping online.**

**Samir Alam**

list prices and the Internet doesn't always seem to cooperate. But that's only because shopping smarter online is quite different from shopping in the streets. The tricks, tips and tools for really making the most from your online shopping excursion can easily be learnt and applied. These methods and suggestions will not only help you have a fun shopping experience but also save you bundles of cash in the long run.

### **Practical Tips: The Boring Bits First**

Everyone has their own little wisdoms about shopping. But to truly be wise

in your online shopping, it's necessary to have a plan. With just a few simple planned steps you can maximise the value of your expenses and even save money down the line.

### **Use a Credit Card**

This may seem counter-intuitive but it works. The simplest reason for credit card usage is security and liquidity. If you're hunting around for deals for your next cell phone you don't want to empty your bank account in one go due to a glitch. While debit cards are a great tool to control credit expenses, using them for online shopping purposes can put your current cash flow in jeopardy. In case of a glitch with a credit card your cash flow isn't blocked since credit card companies can stop or cancel the transaction while on debit cards the money refund is completely out of your hands.

### **A Single Card for Shopping**

Credit cards are a double-edged sword. They allow a reasonable credit at manageable costs if used discreetly but can spiral out of control if not. But in their purest form you should assign one specific credit card just for online shopping. Not only



### A FLIPKART SPOKESPERSON ON BUYING ONLINE

#### What's with the exclusive launches?

#### What sort of insights (on consumer behaviour, data) do brands demand for such campaigns?

Brands, while launching their products online, understand the reach and credibility of the platform. We also believe that the kind of reach a brand can get from an online player like Flipkart is unparalleled. Added to this is the immense amount of customer data we have access to given our 26 million registered users. While we are extremely strict about maintaining the data of our customers at all times, we are also in a unique position to be able to tell brands and sellers what kind of products and prices work for our



customers. We are able to provide granular data on market trends, fast-moving offers and product combinations, etc. This also helps our sellers work out demographic specific marketing campaigns and create a larger impact during their launches. We are always exploring associations with brands and sellers across categories that can be beneficial to not only the sellers, but our customers as well— offering them the widest range at the best prices.

#### Does COD work in India?

COD has worked very well with Indian consumers. Indian consumers are much more cautious about shopping online as compared to the West. They are reluctant to divulge credit card details. The cash on delivery service has helped a lot of traditional consumers turn to online shopping. Also, the model has unlocked a whole new customer base which

hadn't been exposed to the benefits of plastic or is apprehensive about it. Flipkart's focus on customer satisfaction and ownership of the customer experience has led us to really drive COD amongst our shoppers, helping them get access to the benefits of online shopping without compromising their need for security in online transactions.

#### Give us a sense of the percentage split between mobile vs non-mobile users?

Mobile is where we will see the next wave of online shoppers coming from. The attraction of being able to shop on the go, no matter where you are or whether you have access to a PC, is what's driving the m-commerce surge. The potential for growth, given the country's huge population, is massive. In fact, nearly half of Flipkart's sales are being driven by mobile. A report by Boston Consulting Group noted that at present around 45% of online consumers in India use only their mobile devices to access the Internet. This is expected to increase to 60% over the next three years. Given these statistics, any online player looking to tap into an emerging market needs to work towards a 'mobile first' strategy. M-commerce will be the focus area for most online shopping companies this year. Increased smartphone penetration means that a greater section of our target audience is accessing our sites through their internet-enabled mobile phones and we aim to keep working on our apps and tailor-made sites to capture this base. We have already launched native apps across all mobile platforms and special offers to encourage customers to shop through mobiles. We have teams working on enhancing the mobile commerce experience at Flipkart, ensuring that it matches, if not surpasses, the desktop experience. Flipkart, in our view, is slated to become an m-commerce based marketplace.

will this help you keep track of all your transactions but you can also have points gathered in one place. These credit card usage points can come in handy over time if you divert your daily grocery and fuel costs on to this card as well. The points can be used for an assortment of things, depending on the credit card provider, such as free gadgets or vacations. Do a

careful study of which credit card works best for you.

### Secure Browsing

A basic add-on security trick is to do all your shopping in a freshly opened browser window. It even helps to have a separate browser but that might be overkill. Keeping the surfing browsers sepa-

rate from shopping browsers has proven to be more secure due to a lack of vulnerability to online malware in the shopping sessions. Always remember, with money you can never be too careful. It's also a good habit to log-out of your shopping session once done and close the window. Also getting into the habit of purging the cookies on your browser will help make it more secure for financial transactions. Another good habit is to be on the look out for URL information when transitioning between pages while shopping. All transactions take place on a secure page with "https" as a signifier. Sometime malicious programs or people can force redirect payments away from the secure servers and the URL of the payment page isn't authentic. Reading the URL carefully can further help in securing you against outsider fraud.

### Tools of the Trade: The Fun Bits

You would never think that supercomputers would be used to help shopping – but you'd be wrong. The grand-daddy of the computer industry – IBM – has already begun adapting its Watson supercomputer to function as a digital personal shopper for online shopping. The way it would be used is as we would dream it to function – ask for what you want and it finds it for you. Saw an awesome pair of shoes – share the picture on your device and the assistant finds you the websites it's available on. The American Internet shopping site Zappos has even launched Ask Zappos which performs the services of a personal shopper, even if the product isn't available on the Zappos website. In India however we still haven't reached that pinnacle of customer service.

### Here, There Be Deals

The simplest and essential service that helps in smart shopping is the use of price comparison applications and websites. These websites scour the many shopping portals on the Internet and serve as a search engine for all the products available. Since the price difference between websites can turn into great savings, these websites save you the trouble of having to check all of them yourself. You just need to type in what you want and you can see the prices and websites where it's available. Presto! You have a deal!

## TIMES HAVE CHANGED

### SECURE TRANSACTIONS

Most of the security concerns are outwardly facing, with payment gateways, merchant websites and banks dealing with the sensitive information. But most of the critical data begins in your wallet and exists on every device you use to access the Internet. The most common cases of personal financial information leaking is through commonly shared devices or the infiltration of any one of many systems which have hosted the information. Make it a habit of using a single password-protected device for all shopping purposes with a good anti-virus to keep your data secure.

**Junglee.com:** As of now Junglee is the largest price comparison website service currently available. This isn't a surprise considering it was launched by Amazon before they came into the Indian market. It has helped Amazon and consumers alike by tracking the prices people prefer to pay for different goods. For now most items searched for on Junglee will have Amazon India as one of the providers but they may not always be the cheapest ones.

**PriceDekho** has a broader range of items which include automobiles and furniture. However, it's completely lacking in terms of books, music, movies and similar products. The website includes most of the big retailers in its searches and is fairly popular for its updates for deals in different websites.

**MySmartPrice** is another great website which includes major consumer appliances in its searches, such as refrigerators and washing machines, right next to baby items and women's fashions. It neatly categories and links customers with a wide variety of goods and retailers through its interface. An additional perk

of MySmartPrice is its Coupons and Discounts section, where users can find deals for hundreds of products across nearly all major retail websites.

### Using Extensions: Coupons, Price Updates and More

There are a lot of factors you have to keep track off if you really want to get the best deal. It's not just about prices, but the changing prices that can affect your decision to make a purchase. But who has the time to keep checking in to see if there has been any change? Similarly the use of coupons and discount codes can save hundreds and thousands of rupees on a single purchase. But where do you find them? Do you have to patiently wait on some mailing list or competition prize? And what about the high demand, limited stock items? They sell out almost instantaneously. Are you suppose to sit online to buy your next mobile phone as if it was a Tatkal ticket? No one's got time for that, right? Well, now you don't have too.

Given the inherent databased nature of information determining all these factors online, it was only a matter of time before someone came up with an elegant solution. In other countries, applications and web services that keep track of retailer websites for prices and discounts have been around for a while now. And with the boom in the online retail sector of India we have a version of our own. Services that can track items, changing prices and make automated selections for you are rare but finally available in the Indian consumer market.

By making use of handy browser extensions, third-party service provides allow you to have information at your fingertips. The largest and most talked about player in this department is **BuyHatke.com** which brings an Indian flavour to online shopping. With the use of their Google Chrome and Firefox extensions users can now instantaneously see the cheapest prices for their selected goods. By adding these extensions to their browsers users can get real-time information on their active screens without having to jump tabs or windows.

### BuyHatke and CompareHatke

The extension known as CompareHatke runs price comparisons of products



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selected on any major retail website like Amazon India and Flipkart to show users related products and the lowest price available elsewhere. The extension also has new features which shows a price chart for each product on Flipkart to help decide the best time to make purchases. Users can also track prices of any product on Amazon and Flipkart as well. The latest iteration even suggests and provides users with discount coupons automatically at the checkout stage, that will surely save them the most money.

The biggest feather in CompareHatke's cap is their automated booking feature for buying high demand products. The extension proved very successful in helping hundreds of customers buy the Xiaomi phone when it released on Flipkart. It



### THE REALITY OF CASHBACK

There is something primally satisfying about paying for something and then getting a part of that money back in cash. People somehow don't see it in the same way as they would a discount sign or a reduced price tag. There is victory in "cash-back", even if there is no sense. But that in no way means that it isn't an essential aspect of online shopping where savings in any form are welcomed and even more so – demanded.

In Europe and other parts of the world cashback has a different meaning. For example, customers can benefit from cashback in many brick and mortar establishments when using their debit cards. In these cases cashback means that you can add an amount to be given to you from the shop register when making a purchase which is deducted from your account. It's a convenience option that saves you a trip to the ATM – nothing more.

automates the process of adding products to the customers shopping cart when the sale period begins.

Normally the high demand for the website clogs up the website and only a small fraction of customers are able to reach the shopping basket stage to quickly make a payment.

CompareHatke is able to automate the feature and save critical time by competing with the thousands of simultaneous analogue users. In time it's expected that CompareHatke will broaden the functionality of this feature and keep customers happy with the savings in time, effort, money and worry.

### MakkhiChoose

MakkhiChoose is another extension service for browsers which provides a lot of the same features as CompareHatke. It also operates in a similar manner presenting users with real-time information of comparative prices across retail websites while viewing a specific product. Although it doesn't have nearly as many features as CompareHatke, such as automated booking, it's a worthy extension deserving of attention.

Given the nature of competition it's likely that between these two extensions new features and benefits will eventually emerge, allowing users a choice even in whose services to benefit from for their shopping discounts.

### Promo Codes and Coupon Mania

Another proven method of finding lower prices is with the help of promo codes and coupon discounts. Many shopping aggregator websites provide coupons along with cashback and price comparison features but certain websites specialise in digging up active coupon codes. Websites like **CupoNation.com**, **CouponDunia.in** and **CouponMantra.com** track retailer websites and provide customers with a one-stop-shop for finding the right coupon for the right retailer for the right product. They also include information for cashback schemes and high discount sales taking place on different websites. The best way to use these websites is in conjunction with extensions like CompareHatke to see if you've gotten the best discount promo codes and coupons for your deals.



### HELPING CONSUMERS

With multiple active e-commerce players, the marketplace is becoming more competitive in its offerings and aggressive in terms of pricing. The most advantageous feature for consumers is the ability to compare the product across various e-commerce platforms and easily narrow the list down to the best offering.

This only takes a few minutes, saving many hours of physical shopping. Though e-commerce sites have been in India for a long time, the Cash on Delivery (COD) option has been the game changer. Consumers are sure that they are receiving the product and they pay for it in the traditional way and even if they don't like it, they still have a return policy which is even more convenient. Yet another reason is the ease of shopping, where once an optional profile is created, based on consumer preferences, products are suggested and even options of single click purchase are available. Sitting at home, a consumer can purchase a product as soon as he decides and identifies a product or a service and the turnaround time is remarkably less – which further tilts a buyer's preference towards online shopping.

### Cashback = Discount

In India cashback is a bit more literal – you are returned a part of the cash you paid as a marketing incentive to purchase certain products. Cashback websites are a form of affiliate marketing – where these websites offer "cash back" on purchases made on their platforms. They do this by splitting their earnings from e-retailers like Flipkart and Amazon, whom they have promoted to customers for a fee. The cashback is essentially them splitting a part of their fee with the customer. In this way cashback is used to incentivise

consumer's choice of their website as a sales portal.

Users should get into the habit of seeing these cashbacks as price discounts when making their decisions. Members of cashback websites like **Pennyful.in** and **Baggout.com** can see all the on-going cashback deals for different products across almost every retail website right on the home page. Customers can either browse these ongoing deals and then compare the cashback price with the cheapest price available elsewhere to make their decision. For example, a pair of shoes priced at ₹2000 has have a ₹250 cashback – basically a 10 percent discount making its actual cost ₹1750. Customers can compare to see if the same pair of shoes are available elsewhere online at a lower price than ₹1750 – if yes then forgo the cashback otherwise go through with the cashback deal. In the end, cashback is just a discount.

## Cashback = Loyalty Programs


If you are a regular online shopper with a significant amount of money being spent online than certain cashback websites like **Cashkaro.com**, **Pennyful.in** and **GoPaisa.com** might be right for you. In the world of online retail – loyalty pays. So if you're intent and comfortable with shopping online then you will find that not only do these websites offer cashback for nearly all online retailer but also other services as well. Pennyful.in includes cashback on health and medical expenses while Cashkaro.com even offers a referral program where customers can get paid for driving people to the website.

The policies of how cashback is implemented in different ways across websites – while some hand over cash at time of delivery with a smile, others store it in your online account until a minimum balance is reached which allows for transfer to a bank account. In some cases these

funds can be used to pay for other things online such as your mobile and DTH recharge or shopping online. Checking the fine print details of how these policies work is essential to avoid disappointment when shopping.

## Check Out Now

Online shopping with the help of different web services, extensions and tips can radically transform the kind of savings

in time and money. With the additional bonuses from a credit card loyalty program, points for fuel and travel miles, the smart shopper is able to stretch the value of every rupee. But it's worth noting that with increased shopping options, online shopping tools and credit card options, the smartest shopper knows never to shop beyond their means. After all what fun is shopping when you have to worry about money? Happy shopping! 

## INDUSTRY INSIGHTS

### Biggest challenges to shopping online?

Touch and Feel – There is a huge gap between what a product looks like online vs. what is actually delivered. Products delivered with wrong specifications and sizes are particular issues. Customer protection laws in India are yet to catch up with E-Commerce and customers are not as well protected from Credit card fraud, phishing scams, hacking and fake products being sold online compared to offline.

– **Bhaskar Choudhuri, Director - Marketing, Lenovo India**

### Will anyone ever buy anything from a physical store anymore?

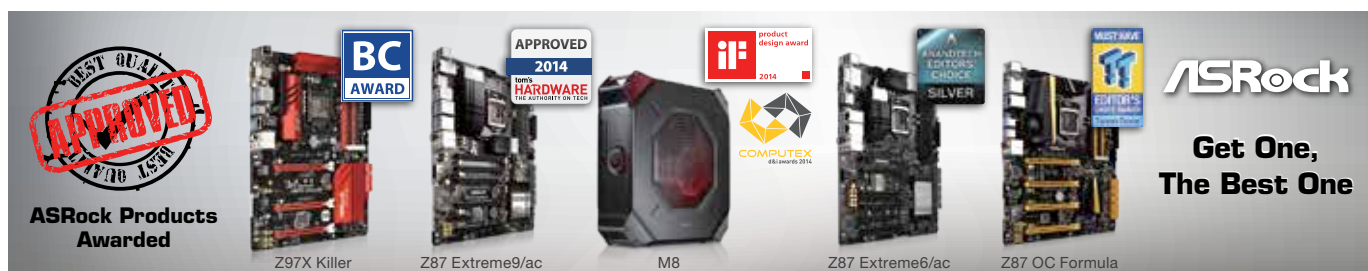
There are some advantages very specific to the physical store format, especially in the emerging markets where the touch and feel of a product plays an important role. For example, a head-phone can be tried on and its sound quality can be tested only at a physical store, or a parent buying clothes for kids has an entirely differing shopping experience in a physical store compared to online shopping. Separately, the emotional aspect for a consumer is important, they may feel more comfortable and convenient in a shop where they have purchased products for many years. Even though online shopping is going to boom in a few years, physical stores will continue to coexist for these reasons.

– **Mr.S.Rajendran, Chief Marketing Officer, Acer India**

### How is the rise of ecommerce changing our shopping behaviour?

Today, increasingly more customer interactions take place online as consumers benefit from the convenience offered as well as unlimited access to products ranging from computing and mobile. Throughout the living history of e-commerce, observers have debated if online retail will make bricks and mortar obsolete. Evidence points to the fact that both online and physical formats can coexist successfully, in large part due to the 'research online, purchase offline' behaviour. While more consumers are shopping online, there is still a large sanction of them who use online sources to conduct advance research, but are more comfortable making a transaction in. While the online store enables consumers to make an informed comparison about product features, specifications, pricing, after sales services, schemes and offers; the traditional brick-and-mortar stores enable consumers to handle the device and make a more informed decision.

– **Rajkumar Rishi, Director, Consumer GTM PPS, HP India**



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# WISH LIST

TEAM PICKS: WHAT IS TEAM DIGIT BUYING THIS YEAR?

WHAT I'M BUYING  
SIDDHARTH PARWATAY



₹9,999

After testing nearly a hundred graphics cards in the past year alone my thoughts went to the pair of GTX 465s that have served me well for close to three and a half years. The SLI configuration is pretty good even by today's standards but the darn thing's throwing off too much heat. So much that I can safely say there are two cooking stoves at my place. So now I'm again on the prowl to look for two more cards to replace my nifty GTX 465's. Maybe I'll go in for two GTX 760s or maybe a GTX 960 for now and hold out for a while till the need arises for a second and then go in for SLI all over again.

Ever since my Sennheiser HD 428s met with an untimely death, I'd been on the lookout for a pair of good headphones. Being a flat response purist I was seriously considering the ATH-M50 or one of the best performers from our headphone comparison test last year. As luck would have it, while researching a reader query, I came across an offer that I couldn't resist. The mid range best performer from our test, the Harman Kardon CL, was available for a staggering 50 percent discount online. Something that costs ₹10k was suddenly within reach! The CL isn't a flat response headphone but the colouring it does to the sound to give it its unique signature is very pleasing. In fact as I said in my review it is one of the sweetest, most comfortable headphones I've ever had the pleasure of auditioning. All of these things make it my purchase this Diwali.

WHAT I'M BUYING  
MITHUN MOHANDAS



₹15,000

WHAT I'M BUYING  
JAYESH SHINDE



₹56,000

The 13-inch MacBook Air launched earlier this year is retailing for pretty hefty discounts on ecommerce sites, with Amazon.in offering a whopping ₹15k discount on them. The MacBook Air is still in a league of its own – whether you look at its overall design, display quality, trackpad response, and amazing battery life. Since I travel a fair bit to and from office every day, it seems the perfect light notebook to have. I won't be doing much apart from writing, researching, watching movies or listening to music on it. I've evaded Apple's "reality distortion field" so far, and my bank balance has all but thanked me for it. However, in the case of this MacBook Air deal, I am almost sold and ready to buy my first Apple device.

WHAT I'M BUYING  
ANIRUDH REGIDI



₹14,500

Being a fan of flight sims, a joystick is an absolute necessity for me. The SAITEK X52 Pro Flight stick is a very versatile stick and barring rudder pedals, comes with almost every button and switch that a hardcore sim enthusiast will enjoy. The Thrustmaster HOTAS Warthog is definitely the gold standard by which almost every joystick is measured, but it's a very expensive option at ₹38,000 and doesn't come with support for rudder control (you have to buy pedals separately). The X52 is also not cheap, especially as it is, after all, a gaming accessory, but to a true sim enthusiast, that's water under the bridge.



### WHAT I'M BUYING

SOHAM RANINGA



₹84,900

I need a TV upgrade, I don't need a very large panel and I want a 4K panel. The LG 42UB820T offers a 42-inch 4K IPS panel along with WiFi (with WiDi) + NFC + Miracast + Built-in HEVC decoding. All this for a sticker price of Rs 84,900. That is roughly 15K over my budget. So, I'll be scanning news papers, hoardings, store brochures and online stores for deals on the LG 42UB820T. We have called this particular TV for review as well, we might just be able to put a review of this TV on the website later this October. So keep checking the site and you are welcome to start a thread on our forum to discuss 4K TV deals. Should be a cracker of a thread. Till then, happy deal hunting this Diwali!



### WHAT I'M BUYING

KUNAL KHULLAR



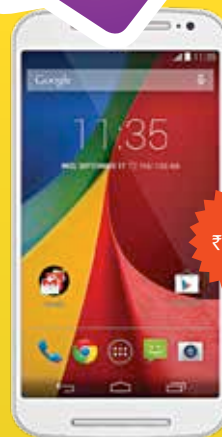
₹15,000

When I was a teenager, I used to love wearing a wrist watch and it has always been a huge fashion statement for me. Today my 'Kenneth Cole' is lying in one corner with the battery dead inside its complicated clockwork mechanism. The Moto 360 is the best looking smart-watch today and being an Android user, it will be the perfect companion for me and my smartphone. The best part about the Moto 360 is that it actually looks like a wrist watch until you start swiping. Agreed, that Android Wear still needs more functionality, but the initial set of features have me convinced. Hallelujah!



### WHAT I'M BUYING

NIKHIL PRADHAN



₹12,999

I've owned an iPhone 4S for over two and a half years now and I love it. Even though I almost exclusively recommend great Android (or Windows) phones to my friends and family, I have never regretted owning an iPhone. In fact, up till recently, my plan was to buy an iPhone 5S, after the prices drop. That's why it makes me a little sad to say that I'll probably end up buying the new Moto G next. My decision has nothing to do with the screen size or price, the two factors that Apple detractors use as their biggest weapons, but rather the battery life. The iPhone has always had average battery life and I've reached a point where 'average' can't cut it.

For me, the new Moto G stands tall in two big aspects- one, I expect it will offer me an entire day's of use without worrying about where the nearest power outlet is; and two, a comfortable price-tag means I won't be hobbling my credit card limit. I just hope it gives me the same amount of comfort and joy that the iPhone 4S did for a similar duration of time.



### WHAT I'M BUYING

ROBERT SOVEREIGN-SMITH



₹40,000

My home was robbed recently. The only expensive gadget to go missing was my DSLR (Canon 1100D) and the 18-55 lens that was attached to it. Given that I still have Canon lenses and am already used to Canon cameras, I guess I'll be buying a new DSLR this Diwali. Although the no-brainer answer is to buy another 1100D or the newer entry-level 1200D, I've decided to upgrade a tad. This brings me to a crossroads of sorts: there are two models available at around the ₹45K price point – the 100D and the 700D. Both belong to the same generation (launched on the same day). The 700D has an articulated LCD, which makes sense for people like me who click a lot of family pictures at parties. It would allow me to shoot above people's heads, or from lower angles without straining my back bending down, etc. The 100D though, is a lightweight DSLR (410 gm), and is 170 grams lighter than the 700D (580 gm). It's also slightly faster to focus, is more compact, and thus more friendly for my wife's smaller hands. Decisions, decisions. I'll probably buy the 700D if I see an offer for it under ₹40K this Diwali – the articulated LCD is a boon for stills and videos when photographing a child.

# BUYING GUIDE

Here's where we tell you how to go about choosing the right products for your requirements and budget



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# SMARTPHONES

## UNDER 15K

We guide you through purchase decisions in perhaps the most popular phone category

Prasid Banerjee

**T**he new battleground for smartphones is the under ₹15k segment. There are more options, but with more choices comes more confusion.

The Xiaomi Mi3 is the best in class in this segment, but it's difficult to get a hold of.

The performance offered in this category is almost at par with flagship models from just a few years ago. The new Moto G continues Motorola's tradition of inexpensive devices that perform very well.



Xiaomi Mi3

If you can't get the Mi3, the next best is the Micromax Canvas Nitro, which boasts a 1.7 Ghz octa-core SoC and 2 GB of RAM at the same ₹12,999 price tag as the new Moto G.

Usually budget devices compromise on build quality, but that's not really true anymore. The Xiaomi Redmi 1S is one of the least expensive, yet high performing devices in the market, which doesn't compro-

mise on quality. Xiaomi chose the scratch resistant Dragontrail glass over the more powerful Gorilla Glass, but the Moto E does use Gorilla Glass 3 – at just a ₹1,000 price difference.

Cameras and displays have also seen drastic improvements. There are a bunch of devices sporting a Sony EXMOR sensor that cost less than ₹15k. The best in class again is the Mi3,

while the ZTE V5 and Canvas Nitro both offer good 13 MP cameras with HD screens as well. For under ₹10k the Xiaomi Redmi 1S boasts of the best camera and display. These companies use displays made by Sharp, who also make the iPhone's display.



Micromax Canvas Nitro



ZTE V5

Some people care about brand value of their devices, which we don't really endorse, but we guess Motorola is the biggest "name" in this segment. All phones have a one year warranty, but after sales service is still important. Micromax service centers are a lot easier to find than Lava's, Karbonn's or others. Though Xiaomi service centers are



Xiaomi Redmi 1S

few and far between, we hear they offer solutions in just two hours.

The Chinese and Indian brands may have been known for bad service before, but that's no longer the case. Affordable smartphones are no longer a compromise. **[4]**



Motorola Moto G

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# TABLETS

Since this ain't a perfect world,  
it's difficult to pick the best  
tablet. Let us help you out.

Siddhant Sharma

**W**hen you have a boatload of tablets available from different price segments, it becomes very difficult and confusing to pick one that would work out best for you. We have a few pointers to help you out, in this regard.

## FORM FACTOR

Some of the most commonly preferred tablet screen sizes are 7 inches, 8 inches and 10 inches. Do remember that the screen size is measured diagonally from one corner of the screen to the diagonally opposite corner of the screen. Since most 7" tablets weigh less than 400 grams, it becomes extremely easy to carry them around. Also, holding a 7" tablet is easier to with one hand for long compared to larger form factors.

## OPERATING SYSTEM

The choice of tablets with iOS is limited as Apple has 7.9-inch and 10-inch iPads. Since apps are screened before they're published, the users can always expect a certain level of quality and safety from the apps. Android is clearly the mass market OS for people who like to tweak because of its ease of customisability. Relatively newer than the other two, Microsoft's Windows is the third choice. With the recent

introduction of Windows 8.1, we've seen various devices that aren't necessarily tablets on this platform such as hybrids. Although the number of apps for Windows is increasing by the day, it's far below that of iOS and Android which means that you'll have to check whether the apps used by you regularly are available on this platform.

## USAGE SCENARIO

If you want to use a tablet for work, then a full-sized tablet with a 10 or 12-inch screen is a must, along with a detachable keyboard. If your sole reason for buying a tablet is watching multimedia content, then buy a tablet with a very high screen resolution and PPI. If you need a tablet for reading,

then a 7" tablet along with a high PPI would be ideal. For gaming, buy a tablet with the best possible specs and battery life in your budget.

## SPECS THAT MATTER

**RAM:** It's of critical importance, and more is always better. A minimum of 1GB is a must for basic usage. For gaming, at least 2GB.

**Storage Space:** Minimum 16 GB is recommended.

**Battery Life:** Always go for a higher 'mAh' capacity and remember that the battery life of a tablet totally depends on your usage scenario.

## COST:

Try to avoid tablet's below ₹5,000 as they're usually not that well-built and perform sub-par. It's always better to look for tablets from the ₹10,000 to ₹15,000 mark. That's the sweet spot for tablets that are good for something of everything. **d**

## BEST TABLETS MONEY CAN BUY

(For more visit: [digit.in/BestTabs](http://digit.in/BestTabs))



### APPLE IPAD AIR

Easily, the best tablet to buy in India. Whether its screen quality, performance or battery life, the Air continues to impress.



### SAMSUNG GALAXY TAB S 8.4

This is the best compact Android tablet. While being slim, you still get a high-resolution 8.4" Super AMOLED display and fast hardware.



### GOOGLE NEXUS 7 2013

The Nexus 7 2013 is our choice for the best 7" Android tablet to buy in India. It's silky smooth and ensures a premium multimedia experience.



### SAMSUNG GALAXY NOTE 10.1 (2014)

Although very costly, this is pretty much the fastest Android tablet out there, with an excellent display to spice things up further.



### APPLE IPAD MINI RETINA

The tablet of choice for anyone who wants a compact, light version of the iPad Air without compromising on the screen quality and more.



### SONY XPERIA TABLET Z

An Android tablet, which is super slim, weatherproof yet powerful. It offers storage expansion and a crisp, high-resolution display.



# MINI PCs

The size cannot be said to be an indicator of the performance that these devices are capable of

Mithun Mohandas

Like any computer purchase that you'd undertake even Mini-PCs need careful usage scenario analysis before you lighten your wallet. Unfortunately, here in India we don't have as many options as we'd like to when it comes to these devices. They may be termed "Mini" but they can pack pretty much the same amount of power than the average computer does.

For tasks like browsing and running spreadsheets you can make do with an AMD E-Series or an Intel Celeron series CPU based mini-PC while moderate tasks may require an A8-5xxxM APU or an Intel Core i5 4200U CPU. However, if you want a SFF computer with a really beefy processor then go for the Intel Core i7 - 4770R or a Core i7 alternative. But you need to

focus on the suffix attached to these processors since they sometimes end up being low powered variants which really don't deserve the respect that the "i7" tag brings on. Along with the CPU, another important thing to cover is the memory and most mini-PCs come with just one DIMM and the performance difference between single-channel memory and dual-channel memory can be as great as 17%.

Mini-PCs rarely have discrete graphics cards, it's often either a Intel HD 4xxx/ Iris Pro or AMD's GCN which is better than Intel's offering. There are a few exceptions like the Gigabyte Brix, which is unfortunately not available in India at the moment and one particular Brix SKU that comes with a GTX 760 definitely takes the cake.

Since we're talking about mini-PCs, size definitely matters. A slim mini-PC won't have a powerful PC or GPU since those things heat up a lot. VESA mounts are another thing to consider since you can attach compatible mini-PCs onto your monitor. If your mini-PC isn't slim or is awkwardly shaped then it will throw your monitor off-balance.

Do keep in mind that mini PCs with lower end configurations often lack multiple USB 3.0 ports or don't have any to start with. The same goes for storage. Paying more gets you an M.2 SSD while entry-level SKUs start off with a 500 GB HDD running at 5400 RPM. You might as well get an 120 GB SSD for about ₹5,000 and give your mini-PC a shot in the arm. **d**

TOP

MINI PC



## GIGABYTE BRIX BX15G-760

Having a desktop GTX 760 is something very few SFF computers can boast of



## LENOVO THINKCENTRE M73

Variety along with great build quality is what the ThinkCentre brings to the table



## INTEL NUC D54250WYK

Intel's 4th Gen NUC isn't behind the others in the arena in terms of price or performance



## MAC MINI 2012

Rumours say that the 2014 refresh of the Mac Mini will be powered by a Core i7 4790

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# BUDGET LAPTOPS

Again, a category that's really, really popular, and confusing because of the many options

Jayesh Shinde

There are plenty of things to consider when it comes to buying a laptop this festival season, especially when shopping on a tight budget. That's where we come in.

## IT'S A BUDGET LAPTOP!

Let's get one thing clear. Between ₹25k to ₹35k, you're not going to get yourself a performance beast. You will have to compromise on build quality, you won't get Alienware-like performance, or get the latest hardware configurations, or even connectivity features for that matter. Don't worry, you'll still get a very good computing machine.

## BUYING OLDER GENERATION GEMS?

Laptops go through an annual cycle of hardware refresh. Stocks of last year's mid-ranged laptops which were originally sold at the ₹50k mark may be available at huge discounts, as OEMs try to clear their inventory. When this happens, keep your eyes open. You may just get your hands on an Intel Core i5 laptop with a 1GB discrete graphics at a throwaway price. As long as you're buying it from an authorized seller and it's a boxed piece with a warranty card, you can go ahead and buy these gems.

## PAY ATTENTION TO

**Keyboard and trackpad:** More than the hardware features, pay attention to subjective aspects of a laptop that also distinguish one from another. Look for keyboards that don't short-change the sizes of important keys such as [Shift], [Space], [Alt], [Enter], [Tab], [Ctrl] and the direction keys. Keyboards with a dedicated number pad get two thumbs up. Stay away from trackpads that have a glossy, shiny surface as tracking becomes difficult, and doesn't provide feedback to your fingers.

**CPU:** Since you are aiming for a basic laptop at an entry-level budget, a dual core processor clocked at 2-GHz, either from Intel or AMD, should be just fine. To save money even further, we've found that AMD processors are generally cheaper than Intel's – but Intel processors are generally better performers.

**RAM:** Most pre-configured laptops these days offer at least 2GB of RAM – even at the budget price point. Don't buy one with anything less than 2 GB, though more is always a luxury – if you can afford it. Don't fall for loads of RAM with a slow CPU though.

**Screen:** The larger a laptop's screen, the larger its

weight. Also, screen brightness is the biggest culprit of battery loss, so choose wisely. Instead of just buying a big screen look for a screen size and resolution combo that seems ideal to your eyes. We recommend at least a resolution of 1366x768. You're not going to find a touchscreen at this price point.

**GPUs, HDD, Battery:** The bigger the better here, but with the budget segment, the choices aren't really overwhelming here, sadly.

## REMEMBER


### Your laptop won't:

- be an Ultrabook
- a gaming machine
- be exceptionally built
- have all input/output ports or connectivity features
- be worth bragging about

### Your laptop may:

- be a Chromebook (<http://dgit.in/1hv68dL>)
- have an older mid-range configuration (Core i5 / 2GB+ RAM / 500GB+ HDD / 1GB discrete GPU)

### Your laptop should:

- Sport a 15-inch form factor at least
- be good enough to watch movies, work on an Office suite and other basic apps. 

## TOP ULTRABOOKS



### ACER ASPIRE S7

Intelligent design and hardware choices means that this device performs just as good as it looks.



### APPLE MACBOOK AIR 13

Super slim, unibody shell, fantastic build quality, exquisite trackpad and battery life. Simply amazing.



### DELL PRECISION M3800

A slim, trim profile, and the performance power of a workstation. Worth every penny.



### HP ENVY TOUCH SMART 14-K102TX

A performance-tuned, ultrabook with a multitouch screen, looks, and an connectivity options.



### LENOVO YOGA 2

This hybrid has elegant, unique design, and good features and hardware at the price.



# SMARTWATCHES

Is it the right time to invest in a Smartwatch? Or is wearable tech still in its infancy?

Jayesh Shinde

**W**earable tech is exploding all around us, right from heads-up displays to fitness trackers; and of course smartwatches. Just on the block and they're already a dime a dozen, aren't they? Before you go on to buy one this festive season, read on what things to mull on.

Two of our biggest problems with smartwatches are that they're way too expensive at the moment and need to be charged often (like your smartphone). Having gotten that out of our systems, here's some buying advice.

## STYLE MATTERS

If you're going to spending more than ₹8,000 to ₹10,000 for a smartwatch, it's safe to assume that beauty will matter. In stark contrast to quintessential expensive traditional wristwatches, the



The Moto 360 Smartwatch

current crop of smartwatches (barring one or two exceptions) all appear to be made for Star Trek characters. It will look good on a college kid's hand, or when you're out jogging in the morning, but forget about sporting one in a boardroom meeting unless it's Futuristic-themed Casual Friday. Don't buy from online sites, we recommend you touch and feel the smartwatch you want to purchase before putting money on the table.

## (IN)DEPENDENT?

First things first, most smartwatches released till date act as second-screen devices for your smartphone. There are very few watches that enjoy an unsheltered, unpaired existence. So yeah, check their IQ before purchasing one, and assess the reality of having to live with two screens.

## COMPATIBILITY

Most smartwatches in the market aren't compatible with all devices. The first thing you should examine is at the device-platform compatibility claims of any smartwatch. Some smartphone OEMs like to keep their smartwatches compatible exclusively with their phones. Others are more forgiving and have a list of companion smartphones. Very few smartwatches are able to work with all major platforms.

## APPS

More apps mean more functionality. Most smartwatches right now suffer from very limited bundled apps and a virtually non-existent developer community. Obviously, this will change for the better but for now, there isn't much to do with a smartwatch other than use it as a fitness tracker or as a companion device.

## SENSORS

Most smartwatches in the market are camouflaged, chic-looking fitness bands, given the amount of sensors they pack in. What's more, the line dividing smartwatches and fitness bands is quite thin, at the moment.



The Galaxy Gear 2

## SMART OR NOT?

It's cool to be an early adopter and start a trend, we get that, but it's still early days for smartwatches. They're still a work in progress and have the scope to be so much more. A wiser person would wait till next year, but a watch enthusiast, perhaps, may not. **d**

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# GAMING CONSOLE

**PS4 vs Xbox One. FIGHT! Only one can be crowned champion. Which is the best console money can buy?**

Videep Vijay Kumar

**N**ow that the Xbox One is in India, it's time for the mandatory face-off against the PS4. So here's what we're going to do: compare both consoles on several parameters ranging from real-world applications including gaming, to usability and media consumption. We're hoping your choice will practically make itself by the time you're done reading this – metaphorically speaking, of course, and not in a rogue-AI-taking-over-the-world sort of way.

## WHERE CAN YOU BUY A PS4 OR AN XBOX ONE?

The PS4 can be bought online as well as at brick-and-mortar stores. The Xbox One, on the other hand, is sold exclusively on Amazon – three bundles are available starting at ₹39,990. 'Imported' Xbox One

bundles for under ₹35,000 were once freely available in the market, but it appears that Microsoft has done something to curb illegal imports, and these are harder to find.

Simply put, the PS4 is more easily acquired. Then again, if Amazon exclusivity and lack of cash-on-delivery aren't a problem for you, the Xbox One bundles do represent good value for money.

## CONSOLE HARDWARE, GAMES & PREMIUM SERVICES

The short version is that both consoles have a respectable catalogue of games right now, and you will be able to experience games like Assassin's Creed Unity and FIFA 15 on the PS4 and Xbox One. However, performance tests have indicated that multi-platform games look and play better on the PS4.



Xbox One – Microsoft's latest offering to Gaming



The PlayStation 4 – power in a nutshell

You will need to subscribe to premium services to play online on both devices, and you'll get access to free content and discounts as an added benefit. An Xbox Live Gold subscription will cost you ₹3,400 a year, while a Playstation Plus subscription is ₹450 cheaper.

## COMPANION AND CONSOLE APPS

The Xbox One's dedicated Skype and YouTube (only accessible via browser on PS4) apps make using both those services easy to use. In addition to the apps, Internet Explorer offers a far superior browsing experience compared to the PS4's default browser.

In terms of companion apps, the Xbox SmartGlass and the Playstation mobile app save us the bother of typing and performing mundane

tasks on a controller. SmartGlass is clearly the superior app. It's more polished, feature-rich and is supported on Windows 8 in addition to mobile devices. The Playstation app is a mobile site masquerading as a full-feature mobile application.

## HOME MEDIA STREAMING

Video playback from any Windows Media Center 7 or Windows 8.1 PC is supported natively on Xbox One allowing you to play videos directly from a source device. The PS4 doesn't natively support DLNA, and as a result, pulling content from a media server isn't something it can do directly. However, a work around exists. Plex is a media server accessible via the PS4's browser to play back content.

We'd say Microsoft wins this round for native streaming support, Windows integration and easier setup.

## THE VERDICT

The Xbox One wins the smaller battles. The more polished user experience can be attributed to companion apps, Windows integration, and media streaming out of the box. Nifty features like HDMI passthrough and native Skype and YouTube apps are a plus. But barely makes up for the fact that multi-platform games on the Xbox One are likely to be inferior to PS4 versions.

If you're the kind of gamer who wants a dedicated gaming console with processing power, visual fidelity and performance, the PS4 fits the bill perfectly. It's a no-nonsense machine that does a good, if not spectacular job as a media consumption device. The PS4 comes out on top where it counts, and because of this, it is our winner in this face-off. **D**

# MULTI-FUNCTION PRINTER

Print, scan, fax. MFPs  
are good for all this  
and more...

Jayesh Shinde

**W**hether it's for a small business, office or home use, multi-function printers or MFPs are becoming an increasingly popular choice for budget-minded customers. Here's what you need to keep in mind for buying one this festive season:

## EVALUATE YOUR REQUIREMENTS

First and foremost, know what you want to do with the MFP. How many scans, prints and copies will you be taking on a typical day (not week or month)? Home users may want to scan and print photos, students might have to file coursework, small offices will go through tens of sheets of documents every day; while at the same time, professional photographers and large enterprises will have totally different requirements from an MFP. Laser printers are great for printing just text documents, whereas inkjet printers will do greater justice to photos. There is no one-size-fits-all MFP in the market.

## TCO


Also known as total cost of ownership, TCO is the only defining value for money metric that matters during the purchase of any MFP. Specs come later, first comes TCO. What it means is that while evaluating a multifunction printer, don't just be swayed by the initial hardware. There are a number of other factors

to consider, including the cost of supplies, ink refills, etc, that need to be weighed in seriously. According to Xerox, "TCO can also increase significantly for devices that are hard to use and maintain, unreliable, or lack the features and capability to efficiently and effectively produce the results you need."

## EASE OF USE & CONNECTIVITY

Make sure the MFP you select is thoroughly tested and that you're convinced it has everything you need and you understand how it functions. For e.g. the intuitiveness of its menu buttons, on-body instructions, port placements, depth and breadth of on-screen display (if present), etc. Also make sure the functions you want are actually present – photographers may want a dedicated SD card slot to use the MFP independent of the PC it's connected to, wireless network configuration and access, printing from your smartphone, etc.

## SIZE MATTERS

Make sure the MFP is able to scan and print documents and images in a variety of sizes and dimensions, make sure you have everything you need. Also, if you're going to move the printer around, check up on its size. We've noticed that some of the office MFPs can be quite big and cumbersome to move around. 

## TOP CAMERA PHONES



IPHONE 5S

Love it, or hate it but the camera on the iPhone is just brilliant with excellent performance.



LG G3

Phase detection/laser auto-focus, optical IS, a dual-LED (dual tone) flash, 13MP. Convinced yet?



SAMSUNG GALAXY S5

A somewhat less impressive phone paired with a superlative camera. Quite a combination.



NOKIA LUMIA 1020

41MP. The resolution says it all. Whatever else the phone is, the camera is just too good to ignore.



SONY XPERIA Z2

An excellent 20.2MP camera is coupled with the ability to take photos underwater. Awesome.

## BEST LAPTOP ACCESSORIES



LOGITECH M185

Probably the best sub-1k wireless USB mouse for your laptop, with nice performance and good build.



TARGUS TERRA BACKPACK

This is more than just a good laptop bag and makes for a great travel companion.



JBL CHARGE

A 6000mAh powerbank and a great bluetooth speaker, a great package for you.



COOLER MASTER NOTEPAL L1

A slim, trim but well-built notebook cooling pad which can accommodate large laptops.



SENNHEISER HD 201

The very basic all-rounder for your laptop, with a 3-metre cable. Impressive choice at that price.



# 4K TVs

All hype? Or some substance? Read on...

Mithun Mohandas

Having launched in 2012, 4K TVs didn't take the world by storm. And why would it? The monstrous things cost an awful lot. Even in those parts of the world where large format TVs sell for dirt cheap, these 4K TVs cost an arm. But things have changed in the last few years with the 4K standard becoming more and more mainstream and they're all the more affordable now. Let's see what's on the horizon at the moment.



4K UHD is still finding its feet

For one, 4K at a respectable frame rate requires a lot of bandwidth. Now this depends on the content to a large extent, slow paced TV shows and movies will look fine on 4K at 30 Hz while action scenes and live-action sports look crappy even on 100 Hz. HDMI 1.4 which is used in almost every DTH set top box, DVD or Blu-Ray player and even on 4K TVs is limited to 4K at 30 Hz. So unless the HDMI 2.0 standard, which was finalised last September, is widely accepted, the content side of 4K isn't looking great. Even HDMI 2.0 is limited to 60Hz for 4K so sports will still be an eyesore till the next HDMI standard comes

into the picture. This is why the demo videos in TV stores are all running really slow. It's a simple relation between resolution and framerate. So a high frame rate should be accompanied by a high refresh rate.

Let's say you're not a stickler for picture quality and a little blur every now and then is fine. You'd still require 4K content to watch, right? DTH providers have only announced 4K streams with no official launch date mentioned at the time of writing this article. So now you have to settle for either a media player or a streaming service. If you were to buy a media player then ensure it has HDMI 2.0 and that might pose some problems since some of these media players only work with TVs from the same manufacturer. If you're thinking of streaming content then Netflix or Amazon are great options (starting this October) and you'll need a good VPN and a steady bandwidth of at least 15 Mbps to sustain a buffer-free playback.

The sad truth is that 4K technology is yet to mature and manufacturers are already pushing out 5K and 8K displays. So it's best to wait it out for another year but if you want to try out the benefits of 4K straight away then you can buy a 4K media player and have it downsampled to Full HD resolution so you can experience a better picture quality, similar to NVIDIA's DSR. 

## TOP HIGH-END SMARTPHONES



LG G3

This is the best smartphone you can buy today, offering exemplary performance, looks and features.



SONY XPERIA Z3

Continues Sony's tradition of making beautiful devices with supercharged hardware.



APPLE IPHONE 5S

Despite the iPhone 6's launch, the 5S is still an excellent choice for a high-end smartphone.



MOTOROLA MOTO X (2ND GEN)

An excellent performer thanks to its Snapdragon 801 processor and stock Android UI.



HTC ONE (M8)

The M8 continues to stand firm as a quality device that manages to balance performance and looks with great aplomb.

## TOP SMARTPHONE ACCESSORIES



SAMSUNG MICROSDHC 16 GB CLASS 10 EVO

Class 10 microSD cards offering up to 32GB. Can't live without one.



KINGSTON DATA TRAVELER MICRODUO 32 GB 2-IN-1 PENDRIVE

A USB drive allowing phones to connect to PCs and much more.



MI POWER BANK 10400MAH

The Mi power bank has a whopping capacity of 10400mAh and comes at an affordable price tag.



SONY QX-100

The Sony QX-100 lens attachment has a powerful lens and a sensor for great smartphone photos.



JBL POWERUP WIRELESS CHARGING SPEAKER

This takes advantage of smartphones with NFC and wireless charging. Pump it up!

# GPUs

Which graphics card should you invest in?

Mithun Mohandas

If we were to print out every request for a graphics card recommendation then we'd probably be able to put together a house of cards. We aren't even going to bother with the whole thing of not buying a graphics card based on how much video memory a card has since it's common knowledge these days.

What matters is how much you're willing to pay to get what you want. Mid-range is the best place to get your




The GTX 760 is a beauty!

money's worth. The low end SKUs are simply not worth the money if you're going to spend ₹60,000 on rig. The bare minimum you need to get would be a GTX 660 or a GTX 660 Ti when it comes to NVIDIA and the R9 270 from AMD does an equally good job. But as you spend more and approach the ₹80,000 mark then you should start considering the GTX 760 and the AMD R9 280 or the R9 280X for a few bucks extra.

As you approach the ₹35,000-40,000 mark you should start worrying about power consumption and heat generation since we've entered the realm of SLI / Crossfire.

We're seeing price cuts across the entire range at the moment so by the time this article comes out you might be wondering whether this was written while the author was zonked out. But that's not the case. A GTX 760 stock card costs about ₹16,000 online and getting two for SLI would cost ₹32,000 which is exactly the same as getting a stock GTX 780. The difference is that the SLI configuration performs way better than a single GTX 780. So you get about 30-40% more performance but the power consumption goes up by 40-50% which is where your worries begin. However, the exact is not true for AMD since two R9 270X cards in Crossfire don't make for a better option compared to the R9 290. The R9 290 is a better solution since it is based on a different architecture (Hawaii) which is much more efficient and ends up crunching more numbers at a much lower net wattage when compared to the R9 270X Crossfire setup. However, with AMD comes better compute capabilities and it's preferred if you wish to try out a better parallel computation programming.

NVIDIA's new Maxwell based GTX 980 which costs ₹46,000 can be considered for really high end rigs since it does the same or better job as a factory overclocked GTX 780 Ti but with a much lower power consumption, the bragging rights are free. 

## BEST ★ ★ BLUETOOTH SPEAKERS



JBL CHARGE

The Charge combines a power bank with speakers, without compromising on audio quality.



LOGITECH X100

A pint-sized bluetooth speaker that gives great sound but won't burn a hole in your pocket.



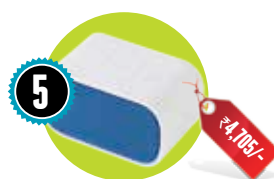
BOSE SOUNDLINK II

For those who want a serious listening experience, this is the best audio quality you can find.



BOSE SOUNDLINK MINI

Again for serious listeners, this is a more compact version of the bigger SoundLink II.



ULTIMATE EARS MOBILE BOOMBOX

If you want a sound upgrade over the X100 without breaking the bank, this speaker is a good deal.

## TOP ★ ★ PHABLETS



SAMSUNG GALAXY NOTE 4

Undoubtedly the best large screen smartphone in the market today. Need we say more?



HTC DESIRE 816

The Desire 816 stands tall here thanks to great looks, design combined with excellent price.



LG G PRO 2

Another great LG product that performs well, offers a good feature set and doesn't cost much.



OPPO FIND 7

The Find 7 came out of nowhere this year to become one of the best large-screen smartphones.



NOKIA LUMIA 1520

Perfect for those of you looking for a large screen smartphone running Windows. Great camera.

# MIRRORLESS DIGITAL CAMERAS

The hottest category of cameras throw up unique challenges during the buying process

Soham Raninga

**M**irrorless cameras are largely aimed at casual users and enthusiasts and not professionals, while there are some excellent pro-level mirrorless cameras in the market, they still remain exceptions. Pay attention to the following:

## 1. SENSOR SIZE

You primarily have two choices when it comes to sensor sizes for mirrorless cameras— the micro four third sensor size and the APS-C sensors. APS-C sensor based mirrorless cameras offer better image quality as compared to a micro four third system based camera purely by virtue of the larger size of the APS-C sensor. With the rapid progress and adoption of APS-C sensors in mirrorless cameras, we recommend you select an APS-C sensor based mirrorless cameras over a micro four third system.

## 2. FOCUSING ENGINE

While most mirrorless cameras use a contrast detection method to achieve focus lock, the very latest generation of mirrorless cameras have progressed to hybrid focusing systems, offering a combination of phase detect and contrast detect focussing to achieve

accurate and fast focusing in varied light conditions. If you are looking to buy a new mirrorless camera, if budget permits, we recommend you choose a model equipped with a hybrid focusing system.

## 3. VIEWFINDER

Mirrorless cameras either use the LCD display as a viewfinder to preview and compose shots or they incorporate an EVF (Electronic View Finder) that works like the optical view finder in DSLRs by offering an eye-level view finder for you.


Many mirrorless cameras offer an EVF as an add-on accessory that attaches to the hot shoe port in the camera, providing the option of adding the EVF feature to camera at a later stage. While EVF is a very useful feature to have in a mirrorless camera, the high premium and limited choice in terms of models makes it suitable for a select few who are ready to pay a premium for the benefits of an EVF.

## 4. FORM-FACTOR

As we mentioned earlier, mirrorless cameras are compact and sit between point and shoots and DSLRs in terms of size and weight. If you are serious about photography

and are wanting to dabble in the art of capturing impactful images, chunky mirrorless cameras with more controls and better grip will do you good, encouraging you to experiment more by virtue of easy and direct access to various settings and manual modes. For a family camera that needs to take good looking shots irrespective of who in the family is using the camera, we recommend buying the non-intimidating compact models if you prefer.

## 5. LENS SYSTEM

Today, the advantage of a micro four third system with wider availability of lenses is fading rapidly. With Sony and Fujifilm focussing and finding success with their APS-C sensor based mirrorless cameras, the market is almost equally divided and the trend is shifting towards APS-C systems for mirrorless cameras. For example, Sony has 4-5 lens options for their APS-C based mirrorless cameras and beyond that, it's third-party equipment. So, the lack of range and relatively high price remains the Achilles' Heel for mirrorless cameras, perhaps the only real reason why professionals aren't yet ready to ditch their DSLRs just yet. 

TOP

BUDGET ILCS



SONY ALPHA NEX-3N

The most balanced and affordable in terms of a price to performance ratio. Nothing better at ₹25k.



OLYMPUS E-PL3

For those on the tightest of budgets, the E-PL3 is the perfect camera for your needs.



CANON EOS-M

For its price tag, you get excellent image quality in a tiny body. Great at its price, a must buy.



SONY NEX 6L

The NEX 6L offers a high quality APS-C sensor, with a hybrid focus system and also has a built-in EVF.



PANASONIC LUMIX DMC-GX1W MIRRORLESS WITH 14-42MM + 14MM LENS

An excellent deal for anyone wanting a combination of basic kit lens and a compact pancake lens with a very well built camera that will appeal to the enthusiasts.



# worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

## (MUST READS)



### GOOGLE DRONE

From cloud computing to self-driving cars, Google has had a finger in every pie except drones – until now. After acquiring Titan Aerospace, a firm specialising in solar powered UAVs capable of extended air times, Google is looking at using the technology to provide internet access in remote islands. Titan's drones can stay in the air for up to five years.

<http://dgit.in/GDrone>

### SHE'S A TRAP.

Step one in getting rid of invasive species is catching them. While the traditional approach to catching these invasive bugs that wreak havoc on agricultural vegetation is to set pheromone traps, researchers have successfully managed to attract and kill male emerald ash borers with the aid of synthetic decoys that look just like the females.

<http://dgit.in/FemTrappale>

### SNAKE REDUX

While the robotic snake featured here may not look too fancy, it's still pretty impressive. This video here features a pneumatic robotic snake making its way around a maze. Still in its early stages, it managed to navigate its way through the maze 24 out of 30 times. There's more about this snake in the link below.

<http://dgit.in/SnaRed>

## [The PopSci Corner]

### WILL FIA'S LATEST FORMULA FEED THE WORLD'S NEED FOR SPEED OR WILL IT SHORT OUT?



British race car driver Katherine Legge guides you through FIA's newest offering, the Formula E championship. Expected to drive the revolution in sustainable, eco-friendly transportation, Formula E will see racers switching cars in the pits and fans giving their favourite racers a boost. Formula E promises to be nothing like we've ever seen before. <http://dgit.in/ElecRace>



#### The Rise of the Machines

He scared the daylight out of you in the 90's. He changed shape and came back for more. He'll soon be a reality. A scientist at North Carolina State University observed that a liquid alloy of Gallium changes shape when voltage is applied.

<http://dgit.in/LiqMetal>



#### You're a fascinating tube of air

If you've seen the video of the snake on the left, well, here's how he works. If you thought ol' Snakey was impressive and wondering how soon it could be vacuuming the gap between the wall and your bed, don't bother.

<http://dgit.in/SnakeBot>



#### The world is her oyster

With very few women taking up coding and computer programming, Reshma Saujani wants to change that. With tech jobs expected to grow, Reshma Saujani started Girls Who Code. If the name isn't obvious enough, read on to know more.

<http://dgit.in/ReshOyster>

**THE THREE 'GUIDELINES'**

After over 50 years since they were coined, do Asimov's Laws of Robotics still hold true? Introduced in his short story 'Runaround' (1942), the three Laws of Robotics were impressive and logical. But are they still any good? <http://dgit.in/RoboDed>

**NOTES FROM THE WRIST**

For people who are incomplete without a watch. From their evolution from pockets to wrists to the author's take on smart watches, if you feel naked through the day because you took it off while taking a shower and forgot to put it on, you will relate. <http://dgit.in/WristD>

**TEN TOOLS TO TRY**

If you thought everybody needs a swiss army knife, you're not wrong. But if you have a list, it's going to need a revision. From the tools needed to extracting headless screws to tools that help you saw off door jams. These tools will help bring out the 'maker' in you. <http://dgit.in/TryTool>

**GIFS FROM YE OLDE**

Old grainy black and white photos remind us of simpler times and instill a sense of peace. These photos on the other hand will give you a bit of a surprise. They range from 'surprising' to 'shocking' in a very Monty Python-esque fashion. Take a look! <http://dgit.in/OLGif>

## Does Android One have the juice it claims we can squeeze from it?

We do a battery test comparing two Android One phones that recently launched with its competitors

– By Prasad Banerjee

A lot is happening in tech this month, but perhaps nothing is as important for India as Android One. This is a program by Google in which it partners with OEMs to bring out low cost Android phones that perform much above what is expected from them. While we await more news, we have tested the performance and camera on these devices. Now we took some time to test out their batteries and pit them against some other Android competitors.

**Devices used:** Micromax Canvas A1 and Karbonn Sparkle V

**Android competitors used:** Moto E, Xiaomi Redmi 1S, Lava Iris X1, Micromax Unite 2, Xolo Q600S



**Battery test:** If you have followed our reviews in the past, you would know the test. For the uninitiated, we charge every device to 100%, run a 1080p video with the screen turned to full brightness and WiFi connected. We then note the drop in the battery after the video has been played for an hour.

**What this means:** Your smartphone screen is a battery hog. Even the smallest of screens take a lot of battery, especially when the brightness is high. So, at full brightness, your screen is consuming the most battery that it will. When a video is played on your phone, the screen is constantly turned on, which means you are consuming a lot of the battery. In general, you won't face this situation in everyday use, but a phone that can last long under such circumstances, can last longer in regular usage.

The WiFi is turned on because under regular usage, most of us generally consume the most amount of data when on WiFi. All our updates are done when we have WiFi, most of our apps are allowed to run fully, update etc. when we have WiFi. So, not only is the video running on our phone, the background apps are also given no bar and WiFi is switched on to create a more realistic situation. Finally, playing a 1080p video takes a lot of processing power, which means that the CPU is also consuming a lot of your battery.

### Results

- **Micromax Canvas A1:** 18% drop
- **Karbonn Sparkle V:** 17% drop
- **Moto E:** 14% drop
- **Xiaomi Redmi 1S:** 19% drop
- **Lava Iris X1:** 26% drop
- **Xolo Q600S:** 21% drop
- **Micromax Unite 2:** 22% drop

The best we have seen in the below ₹8,000 range so far has been the Moto E, which drops 14% battery after the test. Both the Android One devices used though dropped to around 18%, as mentioned above. This means that while the Moto E would have been able to play the video for 7.1 hours, the Android One devices would have done so for just over 5.5 hours.



### Inference

Overall, we were quite impressed with the battery test results of the Android One devices. The battery life is above all devices in this range except the Moto E. Though the Moto E has a 1980 mAh battery while the other Android One phones we tested have a 1700 mAh battery. They do work at par (if not better) than their competitors.

Also, the two Android One phones that we used showed better battery compared to any other in the test. At the launch event, Google had said these phones would easily go a full day and our tests seem to point towards the same. **d**

**POCKET PARKING**

The biggest problem for a car owner is finding parking. 'PocketParker' is an app that tracks the status of the same app installed on other devices. Based on the status, PocketParker tells the user about empty space anywhere nearby. If used well, it just might change parking forever.  
<http://dgit.in/PockPark>

**GET IT RIGHT**

If you fancy yourself a bit of a digital filmmaker, check this out. If you have 20 minutes to spare, here's some advice from John P. Hess of Filmmaker IQ on YouTube as he walks you through the most important aspect of a video- the audio.  
<http://dgit.in/FilmlQTut>

**TEN THINGS TO DO WITH COKE**

It's not just a refreshing drink. From nourishment for plants to cleaning toilets, Coke does a lot more than cause obesity and diabetes. Here are ten things you had no clue Coke could do.  
<http://dgit.in/10Cola>

**LUXURY + TECH + WRIST.**

If you thought smart watches were clunky and cramped your style, here's something more appropriate. MICA (My Intelligent Communications Accessory. Nothing to do with Mudra), by Intel costs \$1000 but is one of the very few devices that offer a blend of style and technology.  
<http://dgit.in/MyCAWrist>

## 5 quick ways to speed up your laptop's gaming performance

A few things laptop gamers should keep in mind

– By Nikhil Pradhan

**N**o matter how great your new laptop is, chances are at some point down the line, you will wish that it worked a little faster. When this happens, instead of spending money on expensive upgrades or a new machine altogether, here are some quick things you can do to improve performance.

### 1 Fix heating issues

**Check laptop vents:** An overheated laptop will often lead to performance shortcomings. To fix this, first ensure that the laptop vents are actually venting air and not clogged up with dust. If there's not too much dust, just blowing on the vents should suffice. If that's not enough, simply employ a small brush to clear them out

**Fiddle with Windows settings:** Every Windows machine gives you the ability to customize how intensely the laptop fan works to cool its insides. Head on over to the Control Panel > Power Options, choose any of the preexisting plans and click on the 'Change plan settings' link next to the name. Click on the 'change advanced power settings' link and then from the drop-down pick 'Maximum/High Performance' option. Although this will adversely affect your laptop's battery-life, it will also ensure that your fan is always working well to cool down your system.

**Use a cooling pad:** Okay, this is not as quick as the ones above, but it's quite

simple. Cooling pads have their own fans as well and help keep your laptop cool and also make using your laptop a more ergonomic activity. The Belkin F5L055 is a good, affordable option to consider.

### 2 Dropping the resolution

As blasphemous as it may sound, sometimes, in order to get optimal performance out of any game, you will have to drop the resolution. Instead of fiddling around with the in-game AA, texture quality, Anisotropic Filtering, etc. settings, if you just push the game down to a lower resolution, you will immediately notice a performance jump at the expense of some visual fidelity.

### 3 Update your driver

You won't believe how many lingering issues in games are caused because of outdated graphics drivers. Both NVIDIA and AMD release driver updates regularly and every big game release is almost always accompanied by graphics driver updates. Unless you've turned notifications off, you will get prompts every time a new graphics driver update is released and we suggest you always keep your drivers tuned to the latest version.

### 4 Increase page file memory


So, Windows does this clever little trick of utilising part of your hard drive as RAM to store least used/unused running applications. This is called page file memory. If you

constantly find your laptop running slow because of limited RAM, you can increase your page file memory to an optimal amount. While this may not supercharge your machine, it may alleviate certain issues if an acute shortage of system RAM was crippling your laptop. Ideally the page file memory should give your RAM some breathing room, so pick about 25% of your actual RAM for Initial Size and double that amount for maximum size (for example, if your laptop has 4GB RAM, then set initial size to 1GB and maximum size to 2GB).

### 5 Keep your drive optimised

Most laptops have only one hard drive. If that's the case, you should make sure that the partition on which your games are installed is regularly de-fragmented and scanned for errors. We suggest you defragment that partition at least once a month. If you have two hard drives, then you will definitely see a performance jump if you install the games on the faster hard drive (especially if it's an SSD).

### 6 Bonus tip: Buy more RAM

Again, this is not so quick or easy, but if you're desperate for a performance jump, then consider doubling your RAM. There's no two ways about it: a RAM upgrade (say from 4 to 8GB) will give you immediate and recognizable dividends. Just check with your laptop OEM's service centre on available RAM upgrades. 



## ANIMAL WONDERS MONTANA

Do you love animals?  
What if they're cute and  
fluffy? What if you get  
to learn all about them?  
What if you get to learn



about animals you've ever  
see before? If you've finally  
seen the light, you need to  
head to Animal Wonders  
Montana on YouTube and  
subscribe. If you're not  
too impressed with our  
description, head on over  
there anyway. It's just a  
click away and before you  
know it, you'll be saying  
'Awwwww'.

<http://dgit.in/AnmtWndrs>

## (QR Code)



For a list of all the links from  
this section, head over to  
<http://dgit.in/wwoct2014>  
Or point your phone to the  
QR code above

## (PRODUCT LAUNCHES)

### IPHONE 6 AND 6 PLUS



After all the hype, the iPhone 6 and the iPhone 6 Plus are finally out there. Again. With full sRGB standard Retina HD display, an A8 64-bit processor and 8 MP iSight camera. both phones are fairly impressive, albeit exuberantly priced  
Price Tag: ₹79,999 / ₹89,999

### FIRE HDX 8.9



Amazon launched its new Fire HDX 8.9 tablet. 20% lighter than the iPad Air, the tablet is sleek, though it looks a bit overpriced. Still, it's an Amazon product, and Amazon will not be denied its bounty. Yo ho ho.  
Price tag: \$379

### JAGUAR XE



Marketed as the British answer to the BMW 3 Series, the Jaguar XE is a beautiful thing to look at, but can it compete with its significantly impressive competitors? It's a Jaguar – expectations are high and the pressure is on.  
Price Tag: \$45,000

## WORDJUMBLE

V	A	Q	T	U	N	F	H	V	R	J	G	Y	U	N	C	Z	V	K	H
S	I	M	X	P	Q	I	H	L	T	E	Y	M	E	D	O	M	P	U	M
Q	S	W	D	B	B	V	T	N	O	C	I	T	O	M	E	F	E	N	I
N	G	T	N	Z	L	S	D	V	O	R	A	K	F	W	O	G	A	A	V
D	D	E	T	B	A	Z	F	R	S	E	X	P	K	I	T	K	A	T	I
I	R	T	P	V	Z	V	A	L	I	N	G	K	R	G	M	C	P	K	I
Q	A	O	A	J	J	U	B	L	M	N	F	A	T	A	M	Y	P	W	P
W	H	I	W	B	O	N	A	E	B	A	I	A	R	X	R	U	L	H	B
E	C	E	D	S	L	N	Z	R	G	C	B	Y	F	A	E	Y	E	F	D
R	T	I	K	Q	S	E	L	A	Z	S	V	Q	N	F	I	G	A	E	Z
T	P	M	Y	L	L	A	T	W	M	W	O	I	A	U	N	I	X	X	F
Y	A	D	H	C	Q	J	P	M	T	L	B	V	Y	O	B	A	I	B	N
M	C	H	A	V	T	E	N	R	E	T	N	I	O	L	L	Q	B	P	M
G	A	R	O	B	P	P	W	I	F	T	M	B	B	J	P	E	H	X	G
V	O	D	D	X	L	X	Z	F	R	I	T	A	G	R	H	X	T	E	A

**ABSOLUTE  
TIMEPASS**

There are 21  
words hidden in  
this word jumble.  
Hunt them out...  
If you can!

## Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these videos playing on your screen



### Freak Basketball Shot Saves Aussie Dad Millions Of Dollars

When you watch this, You will ask yourself 'What are the odds?' Don't believe us? Go on. Follow the link:  
<http://dgit.in/1ocRQhB>



### The Roentgens' Berlin Secretary Cabinet

If you thought the secret compartment in your granny's steel cupboard was pretty cool, check this out!  
<http://dgit.in/1mAEOsM>



### Peeling a pineapple clean and easy

When a pineapple is mashed it releases a chemical called 'Bromelain'. What does it do? Why don't you find out:  
<http://dgit.in/1ocS5JA>

## CUSTOMISE YOUR ANDROID DEVICE

Unlocking a boot loader and flashing custom ROMs take your default Android experience to an entirely different level, permitting you to install custom mods or ROMs that can change the way you look at your Android phone.

However, with flashing custom ROMs, you surrender the security, simplicity and



Make the lock screen informative

reliability of your Android device. Wouldn't it be great if rooting gave you all those features that are accessible only through custom ROMs?

Helping you do just that is 'Xposed', a framework that can change the behavior of the system and apps without touching any APKs.

While you can visit <http://dgigit.in/XposedFr> to know more about this framework, we'll briefly cover this interesting Xposed module at the end of these tips and tricks.

Note: Some of the tips mentioned here strictly require a rooted Android phone. However, we've clearly mentioned which tips require a rooted Android. In case you don't know how to root an Android



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Give old hardware a new lease of life .....	48

{ Tips & Tricks has its own page numbers, and does not follow the rest of the magazine's page numbers. This is done to ensure that you can cut out and save T&T in a separate folder for later reference. }

phone, learn how to do it at <http://dgigit.in/XDARoot>

### Making the lock screen more informative

On the off chance that you lose your Android phone, it's quite unlikely that you'll get it back, but just on the off-chance that you might, here are a few tips.

While an easy-to-use tool such as Android Device Manager (<http://dgigit.in/ADMGoogle>) can be of assistance, there's no guarantee that your device will be found. Regardless of the low possibility that someone will return it, password protecting your device will at least ensure that if a good Samaritan gets hold of your phone, they'll have a way of returning it.

With Android Jelly Bean, you can show your contact information on the lock screen of your phone. Go to Settings > Security > Screen security > Owner info. Here, you can enter your name, email address, contact number or any other detail you want to display on the lock screen.

### Creating custom icons

Websites such as Android Asset Studio (<http://dgigit.in/GithubAAS>) and Android Icon Generator (<http://dgigit.in/IconGAAS>) let you produce icons from any picture you wish to add. Simply upload an image from your PC and choose from the given options to resize and crop it. Now save the file on your PC. Next, connect your Android



Icon Changer Free

device to your PC and move your icons into your phone's Pictures folder. This will make the icons visible in the gallery. You can then use a free application like Icon Changer Free (<http://dgigit.in/IconChangerFree>) or Folder Organizer lite (<http://dgigit.in/FolderOrganizerlite>) to make easy shortcuts with your own custom icons.

### Control your notifications

A barrage of notifications on our Android phones can sometimes be enough to drive us up a wall. If you want to disable these constant notifications, open the 'Settings' menu and go to 'Apps'. Find the application that inundates you with the most notifications and tap its name to expand the related options. Close to the top, just beneath the 'Force Stop' button, uncheck the 'Show notifications' checkbox to make the notifications stop appearing. This technique strictly works on devices running Android 4.1 or higher.

### Setting quick responses

Ever received a call on your phone when you were watching a movie in a theater? At times



Control your notifications



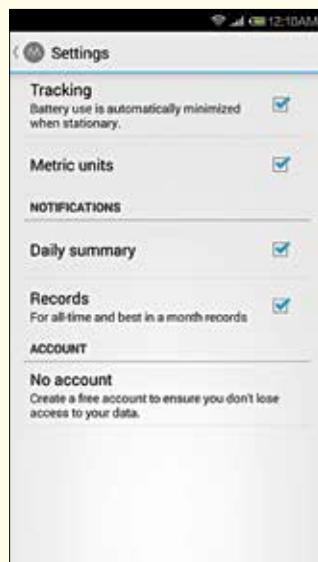
like these it could be difficult to respond to calls, but if the person on the end of the line is important enough to you, there's a way of letting them know that you're in the middle of something without answering the call. Compose a quick response text message by going to Settings > Call Settings > Quick Response. Either select one of the default messages or create your own. If you don't have Call Settings located under Settings menu, navigate to Phone app > Settings > Quick Responses or Other Settings. To edit a response, tap on it and then tap 'Ok'. To use this feature, instead of sliding right to decline the call, slide upwards towards the messaging icon that displays on the screen.



What's eating up the memory

### Find out what's eating up the phone memory

With Developer Options enabled, you can now identify how much memory each of your apps is taking up. Simply go to Settings > Developer options > Process Stats for a helpful visual representation of the memory being utilised at a time by your several Android apps. This might be particularly useful if your Android device appears slow.



Moves app

### Keeping track of your movements in real time

One of Android 4.4 KitKat's exciting features is its ability to track everything you do in your day-to-day life, and in addition be able to differentiate between different activities like walking, running, cycling and climbing. The accelerometer in most smartphones hasn't been leveraged to the extent that you may expect, and just a few third-party apps make it possible to track motion at the moment. One of these is the exceedingly detailed Moves app (<http://dgit.in/ProtoGeo-Moves>) from ProtoGeo, which tracks your movements and gives you information such as the number of steps you've taken as a visual "storyline" of sorts.

### Customise vibration alerts

We can customise ringtones for every contact on our phones. However, this comes to naught when our phones are on vibrating mode. Luckily, you can customise vibration sounds too. Go to Contacts > Tap on any contact for whom you want to set a custom vibration > Under Pattern, tap



Vybe app

'Default' option > Pick a preset pattern. If you want to make your own pattern, simply tap the 'Create' option and tap on the screen to make your pattern. In the event that you don't have this inherent, third-party apps such as Vybe (<http://dgit.in/VybeAndroid>) available on Google Play store can help you do this too.

### Set LED flash notifications

Would you rather prefer silent notifications that alerted you without having to check the phone's screen every now and



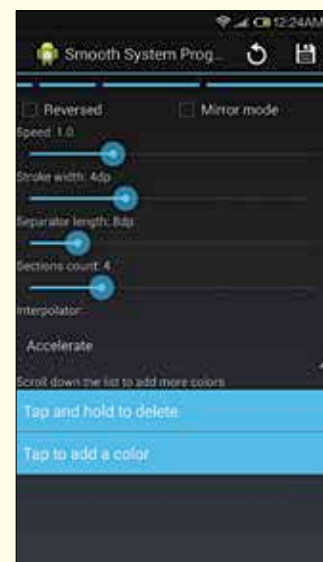
LED flash notifications

then? You could simply trigger your phone's LED camera flash as a replacement. Go to Settings > Accessibility > Turn on 'Flash notification'. Just make sure to turn it off when you're out for a movie or if you don't want your phone battery to die due to high power consumption. However, not many phones come equipped with this feature by default. If your Android is one of those phones that doesn't have this feature, try out an app like Flash Notification 2 (<http://dgit.in/Flash-Notification2>) from the Google Play store.

### Smooth System ProgressBars

An Xposed module known as Smooth ProgressBars works as an additional functionality that augments the visual appeal of the operating system. You can tweak and modify the progress bar to animate it the way you want. Despite it adding mere visual appeal, once you begin using it, you won't be able to live without it.

Before proceeding further, first read all the Xposed-related instructions in the link mentioned at the very beginning



Smooth System ProgressBars



of this Tips and Tricks section. If you have an Xposed framework installed already, you could simply search for this module and download it, or go to <http://dgit.in/XposedSSPB> for the documentation.



### Use advanced reboot options

Advanced Power Menu is an Xposed module that includes advanced reboot options such as reboot, soft reboot and reboot to recovery, as well as a screenshot option in the power menu of your Android device. You can switch between several power menu options like Anti-theft helper (ATH), Hide ATH description, Fake power off etc., which are distinct from each other. To download this Xposed module, go to: <http://dgit.in/XposedAPM>. Once you install the module, it will prompt you to reboot your Android device for changes to take effect.

## GIVE OLD HARDWARE A NEW LEASE OF LIFE

All your shiny new gadgets get special attention, leaving the old tech collecting dust in a corner. Although these old gadgets can still serve a purpose, they remain unnoticed. Even though the technology may be obsolete, we can still eke out a few more months/years from the hardware. Here are some of the best tips and tricks to give your old hardware a new lease of life.



### Turn your old router into a wireless repeater

Your old unused wireless router can be put back into action by using it as a range extender. Some routers offer this functionality directly and will serve our purpose without any hassle. However, if your router doesn't offer this functionality you'll

Manufacturer	Model	Revision	Supported	Activation required
Asus	RT-N13U	-	yes	no
Asus	RT-N13U	B1	yes	no

Check for "yes" under the supported column.

have to perform a few steps to make it work.

This includes replacing your router's factory firmware with a Linux-based 'DD-WRT' custom firmware. Not all routers support DD-WRT firmware so before going further, check whether your router is present in the compatibility list at <http://dgit.in/supportddwrt>

Note: It's recommended that you not proceed further if your router is not in the list. A similar device on the list doesn't mean that you have support either, so be wary and always ensure that you have full support before proceeding with anything.

If your router is in the database, download the latest release. Follow the guide offered on DD-WRT's website for your router and install the custom firmware. After you've successfully installed DD-WRT, open the router's control panel by firing 192.168.1.1 in the address bar of your browser.

Go to Wireless > Basic Settings > Choose 'Repeater' for wireless mode > Enter the SSID of your primary router > Choose 'Bridged' for network connections > Hit Save > Apply.

Then, go to Setup > Basic Setup > Change the router's IP address (to be on the same subnet as the primary router). If this method isn't working for you, refer to the official DD-WRT guide at <http://dgit.in/wlanrepeater>.



### Turning your PC or laptop into a media server

Another great use of your old laptop or PC is as an always-on media server. This will let you stream media content directly from the old machine onto your HDTV or any device without needing to copy the content on a USB drive.

There are many applications that let you do this; unfortunately, most of them are paid apps. Let's look at a free alternative - 'FreeNAS'. FreeNAS is an operating system that offers Network Attached Storage (NAS) services. It can be downloaded from <http://dgit.in/freenas>

Once downloaded, burn and install it on your old PC (you can use USB installation if your PC supports it). After installation, move on to network configuration which includes choosing the Ethernet port from the list and setting up a LAN IP address (use DHCP unless you're using static IP). Once that's done, a URL will be provided that can be used to manage and control the NAS from another computer on the same network.

Note: You don't need a monitor, keyboard and mouse attached to the old computer anymore. You can disconnect them and manage your NAS from any other computer on the same network.

On the computer from which you'll be controlling the NAS, load the URL in a browser and you'll be straightaway taken to

the control panel of your newly setup NAS. To create a media server you'll have to enable UPnP. This can be done by navigating to Services > UPnP > Check 'Enable'.

Following this, give your server a name, choose the database directory (this is just a directory that stores the UPnP configuration file) and add the folder that contains the media content you want to stream. If you want to stream to PlayStation or Xbox, check 'Enable transcoding' as well. Finally hit 'Save and Restart'.

Your server is now up and running. On your TV or any other device, search for the NAS server and it will appear with the name that you just provided.



### Turning your tablet into a photo frame

You can use your antiquated Android tablet as a photo frame and take your living room's standard to a whole new level. All you have to do is wall mount your tablet and run a photo slideshow. Many apps let you do this. Our favourite is the 'Day-frame' app, which is available for free on the Google Play Store <http://dgit.in/dayframeapp>

One thing that we loved about this app is its social network synchronisation. In addition to the photos stored on your tablet, it displays photos from Facebook, Twitter and Instagram, as well as various services such as 500px, Tumblr,



Check "Enable" to start UPnP services



Google+, Dropbox and Flickr.

'Familiar' is another great app that lets you use your Android tab as a photo frame.



## Turning your PC into a retro arcade of sorts

Your not-so-powerful old PC can still be used as an arcade console to play old retro games. To do this all you need is an emulator and a game ROM. There are a variety of emulators available that will serve you the best. Some of them include: Nestopia (Nintendo Entertainment System Emulator - <http://dgit.in/Nestopia>), SNES9X (Super Nintendo Entertainment System Emulator - <http://dgit.in/SNES9xEmulator>), Kega Fusion (Sega Console - <http://dgit.in/SegaEmulator>) and PCSX Reloaded (Sony PlayStation 1- <http://dgit.in/EmulatorPCSX>).

Download and install any of the above emulators you want. Once that's done, you'll need game ROMs, which you can download from any of these websites: <http://dgit.in/EmuParadise> or <http://dgit.in/ROMsection> (CoolROM).

That's it! Once you have the emulator and the ROM, you're ready to play. Most emulators have a default keyboard configuration, which very well synchronises with any keyboard. Some emulators such as SNES9X also let you configure your keyboard. A real game controller – such as a USB retro controller – can also be used to play the games. All you have to do is configure it.



## Transforming your PC into a torrent box

One of the best uses of your old computer or laptop is for continuously downloading torrents. This is a good alternative to your power-hungry worksta-

tion that adds up to your electricity bill.

To do this, download FreeNAS live CD (a distro for NAS services) and install it on your old computer.

FreeNAS is equipped with a 'Transmission' client. To set it up, navigate to FreeNAS web configuration and go to Services > BitTorrent > Check 'Enable'. You can also set up a Watch directory that will let

by loading the URL in your browser that was provided to you during the setup. Login and you have full control.



## Turning your smartphone into an IP webcam

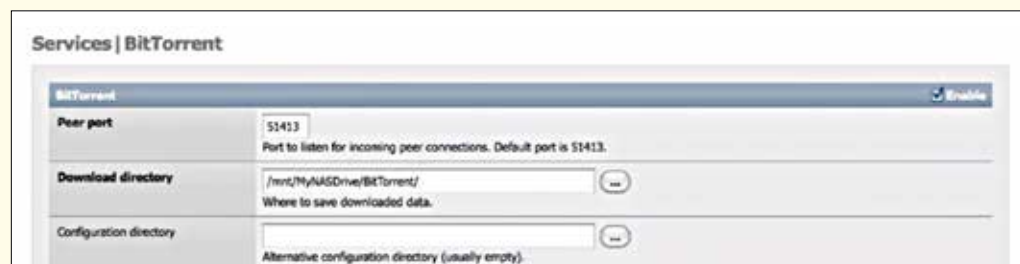
You can use an old Android phone lying around your house as a remote IP webcam for monitoring or surveillance purposes. To do this, download

your old hardware a new lease of life. You'll have to find what works best for you. However, if the hardware is completely unusable, you should securely dispose it off.



## Performing data wipes and trashing your PC

Before disposal, make sure that you've securely wiped out all your data.



Check "Enable" and select the default download directory

you drop torrents into a specific folder, after which Trans-

mission will start downloading them automatically.

To monitor your torrent progress, go to the web interface and install a free app called 'IP Webcam' (<http://dgit.in/IPWebcam>) from the Google Play store. Once installed, tweak the settings as per your requirements (image quality, fps, resolution, etc.). Then, it will give you a URL. Load this in the browser of the device that you'll be using as a monitor (make sure both the devices are connected to the same Wi-Fi network).

Alternatively, you can also use VLC for streaming con-


tent. Apart from the ways mentioned above, there are many other things you can do to give

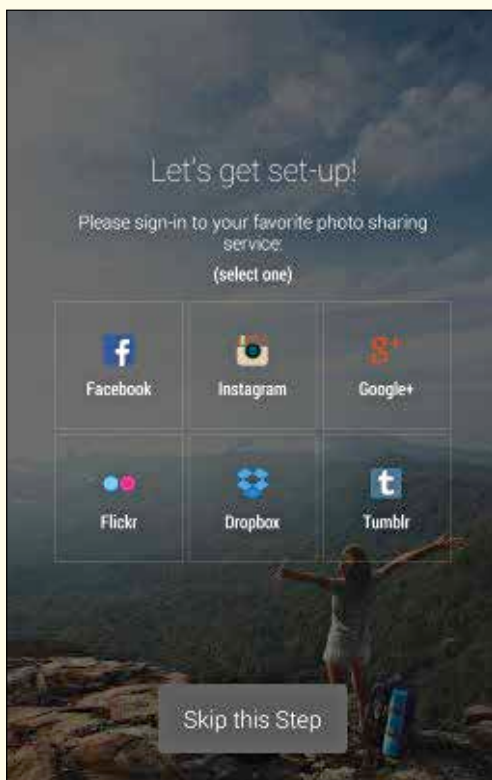
Deleting files, reformatting the hard drive and encrypting files aren't secure methods. The only two methods that work are physically destroying the device and securely wiping using either of the following programs: DBAN (<http://dgit.in/dbanwipe>), SDelete (<http://dgit.in/sdeletetool>) or DiskUtility (<http://dgit.in/diskutility>).

If your device is dead and none of the above methods is applicable, you can think about disposing it. You shouldn't just throw it into the trashcan, as it's unsafe for the environment. Instead, send them to a recycling facility for proper disposal. You can find a list of such facilities across India here: <http://dgit.in/recyclingwaste>



## Donate it to an organisation

If your device is functioning properly and you've chosen to give it a new lease of life, you can donate it to an organisation. You can donate it at: [donateyourpc.in](http://donateyourpc.in), <http://www.pratham.org/>, <http://www.childlineindia.org.in/> or <http://www.unitedwaymumbai.org/> and other such websites. 



Connect your social network accounts for additional photos

mission will start downloading them automatically.

To monitor your torrent progress, go to the web interface

tent.

Apart from the ways mentioned above, there are many other things you can do to give



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**Workshop**

Learn how to fix the Nexus 4's power button problem in a few quick and easy steps

**30GB on OneDrive**

OneDrive recently doubled its free storage taking it to a total of 30GB. Take that iCloud Drive! <http://dgit.in/OneDrive30GB>

# GPU Driver issues, bad phone firmware, random BSODs, And more problems solved...

It's Team Digit to the rescue, yet again.

## Undesired compression

Hey Digit, I made a website for photo downloading. I put my content (photos) on Google drive and put its link on my site. But, when any user downloads an image, the image isn't of high quality. All my users use mobiles. Is this due to compression done by Google? OR can u suggest any other cloud service that allows users to download in same quality on mobile devices. I can't go for hosting services.



Switch it off if you wish to download high quality images

- Pranav Malaviya

**A** If all your users are using Google Chrome on their mobile devices, then the new bandwidth management feature present in this browser compresses these images. For example, we downloaded the same image via a web browser and then via Google Chrome for Android and the image downloaded via the mobile device was 75.5 kB while the original image has 1141 kB. So yes, a massive compression does take place and it won't matter which hosting service you use as long as your users are using Google Chrome on their mobile devices. You will have to provide separate download links in the form of zipped files which will

are bypassed by the compression algorithm. So this way your all your users can get the files in their uncompressed format without fiddling with the Bandwidth Management settings on their phone.

## Ubuntu 101

Dear sir, I am using Ubuntu 13.04 but I have no idea how to install offline software and which file to use for installation. In Windows XP, we use .exe files but which file do we use in Ubuntu. After installation, how do I get to show a particular program file in the computer? Ubuntu uses which extension for installation files?

- Vipul Patel

**A** Ubuntu is Debian based so you need to download files which end with a .deb extension. Once you have the required file, you need to use the dpkg tool to install the file. This will only work if all dependencies are met, i.e. certain files are required to be installed before you need to install most packages (installation files). So offline installation will only work if those are already present or you have to install all of those one by one before getting to the file you wanted to install in the first place. Here is the command used to install packages using dpkg.

```
sudo dpkg -i package_name.deb
```

A popular distro like Ubuntu has plenty of documentation available on the Internet. Check this link to know more about installing files on Ubuntu - <http://dgit.in/UbuntuPackageInstall>. Also, we have a FastTrack dedicated to Linux so you might want to read that as well.

## Bad firmware

Firstly, I've been a great fan of you guys for over 10 years now, though I am not a regular subscriber. I had purchased this month's

edition and had noticed this mail ID in the contact us section and thought of writing to you about the issue at hand. I have an Asus fonepad 7 (K00E). I recently upgraded the firmware and as soon as it was done, the mobile network was no more accessible. I got to know from the comments in GSMarena that this is an issue with the update. Any advice in this regard will be of great help. Thank you.

- Anil

**A** If the update was major then performing a factory reset is warranted. It often solves most problems. However, we read through the GSMarena link that you sent us and it is pretty evident that you aren't alone and there are numerous others who're all facing the same problem since the update and a few have even mentioned that the device needs to be taken in to the service centre. If your device is under warranty then do take it to the service centre or you can wait it out till ASUS releases an update to fix the issue. Moreover, it seems that GSM services running on the 1800MHz band seem to be affected so if you do have a SIM of a network that runs on the 900MHz band then you must be able to use that till the fix is released. Check this URL to find out which all service providers in your area use the 900MHz band here: <http://dgit.in/GSMBands>.

Now if you wish to take things into your own hands, then you'll have to downgrade the firmware of the device to get it back to its previous state. Do note that doing so will void your warranty. Here is a link to an article on XDA which has instructions for flashing the stock ROM onto your FonePad 7: <http://dgit.in/FonePad7ROM>

## Random BSODs

Hi Team Digit, It's a great opportunity for me



## Extract from 4K videos

Red and Panasonic have made it easier to extract stills from 4K videos using a new system.  
<http://dgit.in/4KExtract>

## Create custom maps

With the relaunch of maps engine lite, Google wants to let you create and share your own maps. Head here:  
<http://dgit.in/GMapsLite>

Q&A

to have a problem with a PC and get a chance to write an e-mail to you guys about it.

My friend started facing a blue screen error after a few days of buying a desktop PC which neither I, nor he, nor did any other nearby experts could solve. Everyone recommends formatting it, but formatting is not the ultimate solution as there are many things on the computer which will be very problematic for backing up because we guys have very limited internet speed. The BSOD often occurs at unexpected times after starting up successfully and using the system for about half-an-hour. Sometimes it happens after a minute too. System configuration:

- Processor: 2.92 GHz Intel Core 2 Duo;
- RAM: 2 GB;
- Graphics: 781 MB onboard;
- OS: Windows 7 Ultimate 32 bit.

I request all you experts to suggest a solution which doesn't require formatting the PC to get rid of this issue as it sometimes makes us lose our valuable work done on Photoshop.

- Sayan Sinha

**A** To solve your problem you first need to figure out what caused the BSOD. WhoCrashed will analyse your crash dump and let you know which software or hardware issue is the cause behind your BSOD. Once you have that narrowed down, you can search online to find the appropriate solution.

## Driver woes

Dear Digit team, I have a problem with the graphics card driver in my laptop (Dell Inspiron 14Z 5423 with a 1GB Radeon graphics card). The graphic driver automatically stops working from time-to-time. I reinstalled it but the same problem occurs again. I hope you guys can help me solve this problem somehow.

- Eklak Dangaura

**A** You need to provide us with error codes that the Catalyst Control Centre gives you for us to look into the issue. There are hundreds of possibilities as to why this might have happened and not even mentioning the OS makes it even more

difficult to troubleshoot. So there is the usual driver re-install which you need to do. Before you go about it, you need to uninstall the existing drivers for AMD and Intel. Then go into the BIOS and switch off AMD graphics and install Intel HD



Figure out the culprit using WhoCrashed

graphics drivers. After this is done re-enable AMD in the BIOS and then install the AMD graphics drivers. This often solves the problem with switchable graphics. However, if we are to help you any further we will need a lot more information about your system and the setup that you use. Please send us the details. **A**

# Samsung KNOX

**C**andy Crush, Whatsapp and Facebook or Salesforce, Webex and Citrix? BYOD, CYOD, COPE are the buzz words in the enterprise mobility space that points to one large trend - Employees want to bring in their choice of device and employers want to make sure that the data being accessed on these devices stay secure. Companies in India that permit these policies mostly allowed only email to be accessed from the mobile devices. But that is changing at a rapid pace. As business expands beyond geographical and political boundaries, Enterprises are forced to look at enabling business as fast as possible to increase productivity and revenue. Be it Sales force automation, Supply chain management, Mobile Analytics, healthcare, HR etc have become important tools for the Indian Workforce to be readily available on their mobile devices.

The Indian Enterprises were very reluctant to the BYOD trend initially. But as BYOD Solutions matured and added cloud solutions, enterprises started seeing the business edge and financial advantages and started embracing BYOD in a big way. While BYOD spread, Android has become the most preferred platform in the BYOD Scenario and according to market figures, Samsung is leading the pack with nearly 40% of this mobility pie. To rightly balance the personal and work requirement, Samsung, in its leadership responsibility has introduced Samsung Knox, the most secure platform available for BYOD in today's android landscape.

Samsung KNOX is a holistic enterprise platform that provides enhanced security and container solutions with cloud-based enterprise mobility management services as well as a marketplace, which provides KNOX products and software-as-a-service (SaaS) apps. With greater security and improved usability, Samsung KNOX provides an evolving platform for today's dynamic enterprise mobility requirements. It provides for two personas - Work and Personal that are completely independent of each other and allows enterprises to have complete control of enterprise data on the work persona Samsung KNOX meets the needs of the most demanding

enterprise business environments by offering comprehensive protection against malware attacks and hacking with its multi-layered security model and industry-leading device management capabilities. Samsung is able to achieve this by completely revamping the android stack right from the hardware layer

Enhanced Security is provided throughout the security chain within the platform layers. It delivers the security needed for the enterprise android devices from the hardware to the application level. The Multi-faceted security is rooted in the tamper resistant device hardware through the Linux kernel and Android operating system. The result of which is that this solution is strong enough to run even government networks.

## Certifications and Approvals:

Galaxy devices with KNOX embedded have received Common Criteria (CC) certification, as officially documented by Gossamer Labs of Catonsville, MD. Common Criteria is the international "gold standard" for secure and trusted systems, specifically to ensure that they satisfy the predefined set of security requirements designed for enterprises. Samsung KNOX confers enhanced security upon mobile devices, helping enterprises protect mobile access to high-value information assets.

The Samsung KNOX enabled devices have also been approved by the US Department of Defense for use in DOD networks. Knox is the first Android Platform to achieve this significant milestone on the Android platform.



## Expanding the Ecosystem:

In addition to the core features of KNOX, Samsung has also announced new cloud based services, KNOX EMM and KNOX Marketplace, broadening the KNOX customer base by catering specifically to SMBs.

## Samsung is providing the following services with KNOX:

• **EMM:** Provides cloud-based Mobile Device Management and Identity and Access Management (SSO+ Directory service) with a rich set of IT policies to implement company guidelines. KNOX EMM includes:

- Over 326 IT policies
- Single sign-on for web-based and mobile apps
- Cloud directory service as well as on-premise active directory to manage credential information
- Cloud-based enterprise services including productivity enhancement suites CRM and ERP

• **Marketplace:** A one stop shop for SMBs to find, buy and use KNOX and enterprise cloud apps in a unified environment and includes:

- A comprehensive catalogue of business applications including KNOX and 140+ cloud apps
- Customizable bundling for customers to buy multiple apps in a custom bundle
- Consolidated billing to allow customers to combine multiple products into a single invoice

The key feature of KNOX EMM and Marketplace is that all the services purchased from the marketplace come with the zero-sign capability implemented by KNOX EMM. IT Admin can easily supervise employee access rights to the purchased services according to the credentials defined in the directory and employees can access these services from mobile devices and PCs without an explicit registration and sign-in process.

## Conclusion:

Whether you are planning to empower your sales force with mobile based CRM, or enhancing employee productivity with internal apps on the mobile, providing your executive team with business analytics that needs to be delivered in the most secure way on an android platform, then Samsung Knox is the only solution available in the market today. Samsung Knox provides best in class Android security that is compatible with most leading MDM solutions or on its own through Samsung Knox EMM - The free cloud based MDM solution for Knox Enabled Samsung Devices. To see if Knox is the solution for your enterprise mobility implementation, visit [www.Samsungknox.com](http://www.Samsungknox.com) and request for a free demo today.

**Browse the web via SMS**

Cosmos for Android app wants to let its users access the web via text messages by only filling in the URL. <http://dgit.in/CosmosAndroid>

**Airbus' patented helmet**

Airbus is building a helmet display, which they are patenting, to isolate you from your fellow passengers. Read more here: <http://dgit.in/AirbusHelmet>

# A not so Powerful Nexus

When your trusty old Nexus device's power button starts acting up, what do you do? One of the following things.

Jayesh Shinde  
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**A** darling among Google's Nexus lineup of devices, one that actually created waves by selling at an atrociously low unlocked price in the US (where people are only ever used to buying phones with a contract with telcos). The Nexus 4 handset is just shy of being two years old now. A lot of Indians sport the popular Google phone simply because it was the first one to be sold officially in hither shores. Apart from one small problem which has been experienced by a substantial number of Nexus 4 – and to some extent Nexus 7 tablet – owners.

You see, the power button of the Nexus 4 isn't its most shining part. In fact, it's not only difficult to press, but it allegedly worsens as time goes on. There are a number problems plaguing the Nexus 4's hardware buttons, and we've experienced most of them progressively over the past two years. So here's what we've found you can do to either alleviate the pain by having to deal with a constantly dysfunctional power button on the trusty old Nexus 4.

## What's the problem?

Nexus 4's power button unleashes several pain points in end user experience, particularly as the device gets older. We've

heard (and to some extent experienced ourselves) people complaining about the following on their Nexus 4 smartphone and Nexus tablet with respect to its power button:

- That it becomes harder to press as the device ages. What used to take a single click earlier now takes two, three or even more repeated presses for either locking or unlocking the device.
- The phone is late to acknowledge the triggers of the power button, leading to a scenario where you repeatedly press the power button multiple times only for the device to lock and unlock immediately (or vice versa).
- Long pressing the power button also becomes a hit-n-miss affair as time goes along.
- All of these power button issues are compounded even more if you're prone to using your Nexus 4 phone (or Nexus 7 tablet) in a case, since it makes it that much more harder to hit the power button accurately and requires greater force.

Granted, every device goes through mechanical



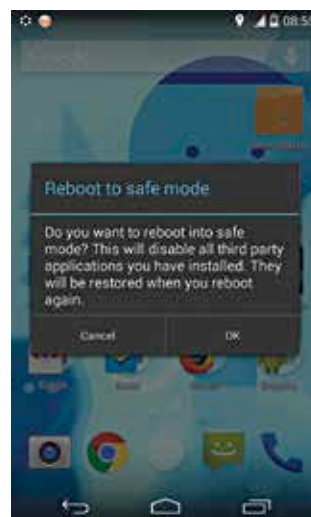
wear and tear, and the Nexus devices aren't immune to this gradual degradation of hardware parts. However, the power button's behaviour isn't clear cut to suggest that.

## Boot into safe mode

More often than not, it's usually an app that sends your phone's software into a tizzy. If you sense that the power button was fine until a software update or app installation, then try to see if your hunch is correct. And just like you would on your

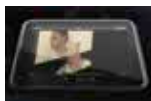
Windows PC, the Nexus 4 also allows you to boot into safe mode to see if everything is working hunky dory or not. You can start up your device in safe mode, which temporarily disables third-party apps that you've installed.

- Ensure your device's screen is on, then press & hold the Power button.
- Touch and hold the Power off option in the dialog box.
- Touch OK in the following dialog to boot into safe mode.



Reboot to safe mode dialog.





## Aquila tablet scans in 3D

The Aquila tablet can scan our world 3D, giving detailed spatial representations. <http://dgit.in/AquilaTablet>



## No more refilling

A new inkless pen, Cambiano, oxidizes the paper it touches, hence it can go on forever. <http://dgit.in/Cambiano>

Workshop

- Try using your device in safe mode to see if the problem persists. If it doesn't, restart your device to get it out of safe mode and uninstall recently installed apps to see if you can pinpoint the one that's causing the problem. If this doesn't work, an alternate way of booting into safe mode is as follows:
- Make sure your phone is off.
- Now try to turn on your phone by pressing the power button, as always.
- As your phone is booting, quickly hold down both the volume up and volume down buttons and keep them held until you see your phone's home screen.
- Notice that you should see a "Safe Mode" watermark at the bottom left part of the screen, to let you know that you are now in safe mode.

To exit safe mode, in either methods, you just restart your device as you normally would.

The beauty of safe mode is that while you can't use third party apps in there, you can still uninstall them. So if your phone isn't behaving as it should by throwing up problems ranging from constant freezing, disallowing you from uninstalling apps, first thing to do is to boot into safe mode. In addition, if you need to, you can backup your data or factory reset your device in safe mode.

Depending on the extent of your Nexus 4's hardware privilege access (requested by apps when you download them), there are apps that could interfere with the native functionality of the Nexus 4 power button. From what we've seen, apps like battery indicators, widget managers, and even some launchers can be interfering with the power button's ability to function normally. Usually, uninstalling these conflicting apps can solve the problems associated with the power button.

## Dialing back to older OS

It's no secret that the latest installment of Android KitKat 4.4.4 isn't without its

fair share of troubles for Nexus 4/5/7/10 users. From fast draining battery to unexpected and completely random device reboots, the firmware upgrade is leading to some strangely wonky behaviour among Nexus users who were perfectly happy with their device's performance up until Android 4.3.

While there are a number of workarounds to help solve these issues across several Nexus devices, the problem associated with the Nexus 4's malfunctioning power button is

seemingly attributed to the same issue. While we won't recommend dialing back to an older version of Android, but several Nexus users across the interweb have attested to the fact that their Nexus 4 power button woes have reduced or completely disappeared as soon as they've abandoned Android KitKat to go back a step in time and installed an older version of Android.



A Google app in Safe Mode.

## Making some setting tweaks

A lot of users who have experienced the Nexus 4 power button ailments sort of disappear (regardless of which Android OS version they were on) or at least reduce substantially after they did some very basic tweaks highlighted below:

Go to Settings

- Click on Security
- Uncheck the box that says 'Power button instantly locks'

We know this can be counter intuitive to the de facto way of using touchscreen phones these days, but this seems to have done the trick to quite a few Nexus 4 users complaining about the power button issues.

- Go to Settings
- Click on Security
- Tap on the Screen Lock options
- Select anything but 'Pattern' mode of unlocking your handset

We've tried this step ourselves where a Nexus 4 user we know from a long time

had power button issues and he only ever used the pattern unlock mode. Turns out, quite a few Nexus 4 users on troubleshooting forums online had a similar mode of unlocking their device.

And when they (including us) shifted to another mode of unlocking the phone (PIN, for example), it seemed to have reduced the magnitude of the misfiring power button blunders. At least that's what we've perceived for a while, puzzled about how it could work (if at all it did to some extent).

## Unlock screen app alternatives


Another way to get around this Nexus power button problem is to minimize hitting it as much as possible, and start using apps that help you lock and unlock the screen through simple flicks or taps – yeah, it's that easy.

Try checking out apps like Tap Tap App (<http://dgit.in/TapTapApp>) – one we've tried ourselves. It lets you swipe across the Nexus 4's proximity sensor to lock or unlock its screen and thereby completely bypass the need to compulsively press the power button every time. Take some time to read how to use it and get the hang of it, and as long as you do that you're pretty much sorted. Another app to consider using is Screen Off and Lock (<http://dgit.in/ScrOffAndLock>).

## Taking a closer look at the power button's assembly

This should be the absolute final step in your process to troubleshoot and find a remedy for the irritating power button behaviour on your Nexus device.

Don't follow just any online guide, as you may damage your phone beyond repair. But iFixit's guide on replacing the Power button on the Nexus 4 is pretty detailed with lots of indicative images, so you'd want to take a closer look at that.

You can also lookup Nexus 4 tear-down videos on YouTube before prying it open yourself. But remember: it's always a good idea to consult an expert – your local smartphone repair guy – in this matter if you're nervous or not understanding what you're doing with the device. 

**Space age**

We take a look at the problems of farming in space for space faring humans, our possible progeny.

**FBI's Facial Recognition**

Fingerprinting has been a staple for the FBI, but now they've moved on to facial recognition <http://dgit.in/FBIFacialRecog>

# The Return of the

# PC Master Race

The PC isn't dead! Like a phoenix rising from the ashes we take a look at the next revolution of personal computing technologies.

Samir Alam

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**N**ot a year goes by without someone making the declaration that "The PC is dead!" The 2014 Consumer Electronics Show hosted last January was no different. With the wide assortment of post-PC gadgets being touted for days—the show was overtaken by products and services such as tablets, phablets, wearable tech, game controllers and 4K curved TVs, with brand name releases such as new Chromebooks, Valve's Steam Machines, Sony's Playstation Now service, Razer's Project Christine and the Oculus Rift. It was clear that the PC market had defragmented beyond repair—with appliance-based devices being the next generation of personal computing—where computing wasn't really the point.

But as with all things in technology—change happens quickly. And although the broad truths of the post-PC world hold true—with fewer users looking to a singular computing device for all their varied needs—it's still too early to pull the plug on where personal computing is headed. The signs of the PC's resurgence lies in the unspoken, unrecognised and almost creepy proclivities towards innovation. So although it's easier to look at the change and call it death, we know that it's nothing but the chrysalis from which something new and extraordinary is sure to emerge.

## Innovation Is Where It's At

The PC is a mysterious mistress, constantly changing its form, keeping us



Innovation in PC design such as Razer's Project Christine for modular design are on the cutting edge.

unsure of its true nature. While companies like Apple are determined to restrict the personal computer within the realm of the appliance—like a toaster or washing machine—the true technology culturalist recognises the PC platform as one of innovation. And while it must be acknowledged that it was the Apple Macintosh that gave the world beautiful typeface fonts on its screens, it was the PC wave that allowed casual users to learn how to make their own fonts. The Glorious PC Master Race is one built on adaptability, upgradability and flexibility, and it's they who recognise that the difference between "a tool to employ" and "an instrument to wield" is a subtle one. This is where PC's still find relevance.

It's an obvious fact that with the recent trends in extreme, personalised computing and the emergence of wearable,

cloud supported tech, that PCs will find new form factors. But the core body of its desktop avatar isn't one that will vanish into disparate devices, rather, it'll be enhanced with newer forms.

## Eight Things To Rule Them All

But even as we go on proselytising and evangelizing the glories of all things PC, this isn't a religious pulpit we speak from, but a rational one. Once we consider the next wave of revolutionary technologies nearing their release for PC systems there will surely be very little convincing required on their part.

### AMD's 25x Energy Efficiency Boost:

Ambitions are sky high in computer processing and even as we recover from the reeling developments in quantum and neuromorphic processors (IBM's TrueNorth chip) we find AMD planning a release for their most promising chip yet. Being called the "24X20" target, AMD has started plans to develop a radically new generation Accelerated Processing Unit (APUs) with 25 times the energy efficiency by 2020. This is a huge leap considering that the last six years have only seen a ten times increase in efficiency. This development means that with the expected exponential expanse of personal computing on the horizon, users will be able to save massively on their energy costs—which amounts to nearly USD 20 billion of savings annually across the world.

By employing a combination of innovative techniques such as intelligent power management systems, advanced APU architectural designs, improved semiconductor manufacturing processes and



## Governmental spying

WikiLeaks has revealed the software that governments are using to spy on the people  
<http://dgit.in/SpyingSoftware>

## No more Windows Phone?

Windows Phone will probably no longer be called as such. "Windows" will suffice for now  
<http://dgit.in/OnlyWindows>

Tomorrow's tech

an increased focus on typical use power—AMD hopes to go beyond the restrictions predicted by Moore's law by over 70 percent. AMD and other companies who are developing processor technologies along the same lines know that the future is PC and are investing in its potential from today.

**Intel's WiGig Standard:** Despite the world going WiFi we still find ourselves caught up in a lot of cables—a definite turn off for most PC users. And as users have gotten used to easy WiFi access at home and public spaces, one of the major industry leaders—Intel—is shaking up the scene. Known as the Intel Skylake platform, it's an envisioned reinvention of the PC that aims to eradicate cables within the next two years. Currently, the Skylake platform is scheduled for release in 2015 and it's all thanks to the WiGig standard. WiGig is used to provide an assortment of benefits such as streaming video to televisions and monitors, connecting devices to wireless access points, no-touch docking stations and wireless charging. As many manufactures are still competing to provide these features, Intel is on its way to make it the standard—which will not only bring costs down but also make them universally available, replacing HDMI and DisplayPort cables in one fell swoop.

**802.11ax WiFi:** Intel's Skylake WiGig works on the 802.11ad IEEE standards and is limited to short unobstructed ranges which, although perfect for close proximity, aren't perfect for wide area usage. Enter the IEEE 802.11ax WiFi; it offers a significant boost to the efficiency of WLAN networks. Even though it's still in its early stages of development, its predicted contribution to enhanced PC connectivity isn't to be underestimated. With the new standard, users will go from the measly 1,300Mbps speed of 802.11ac to the whopping 10Gbps speeds of 802.11ax. Given that the usual router distribution ratios only allow for 400Mbps on 802.11ac to a mobile device, 802.11ax will easily boost this to over 2Gbps.

Huawei set up a series of experiments that demonstrated a maximum speed of 10.5Gbps via 802.11ax, a massive increase in Wi-Fi speed over the current generation of hardware.

**Reversible USB Type-C:** As PC users continue to demand more power and speed in every performance sector of their user experience, data transfer speeds via USB are no different. With the highly anticipated release of the new USB 3.1 Type-C connector cables, users are intended to be taken it to the next level.

The new models will be smaller and sleeker than the USB 3.1 Type B cables and connectors that everybody is used to, but fortunately are designed with passive cables which will let older device models connect to the new connector and vice versa, thereby providing effective backwards compatibility. The data transfer speeds are also doubled in the USB 3.1 Type-C from 5Gbps to 10Gbps with an estimated peak write speed of 800-900

sation of their charging power cables. The International Electrotechnical Commission (IEC)—a non-governmental standards agency—is determined to establish a technical standard for laptop charging cables. After its success with the standard micro-USB port on mobile devices, IEC wants all laptop charging cables to be interchangeable with no proprietary fuss. Not only does this mean a significant savings in electronic waste (over 50,000 tonnes of redundant chargers annually) but also consumer happiness since it will, once and for all, free them from the hassles of managing multiple cables. The IEC is in aggressive negotiations with manufacturers to arrive at an amicable compromise for the sake of the environment and consumer welfare. With issues



WiGig takes all the best features of WiFi and makes the dream of wireless charging and HD streaming closer than ever before.

Mbps on an SSD. The power delivery capacity of the new cable is also significantly enhanced to supply up to 100 watts of power. Interestingly enough, the new design will allow two way power transfers so in the use case of laptops, power can be taken from or provided to the machine. The potential for its use to send PCI-E data is also possible. And of course the reversible plug orientation will forever change the frustration of flipping over the connector so it fits the right way.

**Unified Power Cord:** A seemingly small but significant victory for laptop users in the near future is the universali-

of proprietary power systems, variable power capacity and the inherent revenue stream manufacturers enjoy from selling power cables, IEC believes that a standardised power cable that supports a wide range of notebooks and laptop computers while maintaining plug, safety and environment specifications.

### Nvidia's G-Sync and DisplayPort

**Adaptive Sync:** The upcoming commercial release of display products that support Nvidia's G-Sync and DisplayPort's Adaptive Sync is news to be excited about. Nvidia had showcased its G-Sync late last year through an easy to use hardware



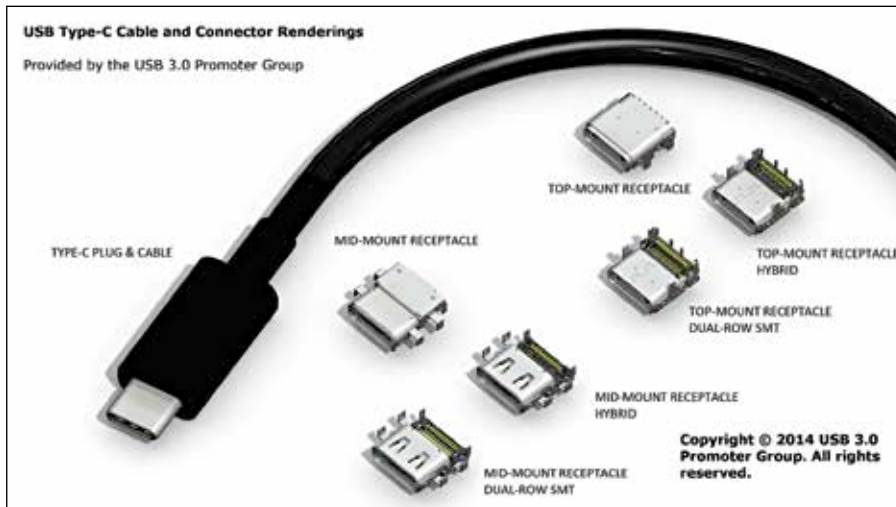


## Cellphone lanes

Somewhere in mainland China, there is a dedicated lane for people glued to their cellphones <http://dgit.in/PhoneLane>

## Self-heating shirts

The Flame Base shirts are self-heating shirts that will maintain your body at a toasty temperature that you fancy. <http://dgit.in/FlameBase>



The reversible Type C connectors will improve every aspect of cable use from speed to ease-of-use and comfort.

kit which would immediately upgrade a monitor and provide improved latency, eliminate screen tearing and providing a better visual experience to the users.

For gamers this is a special boon since in many cases, the high frame-rate of active games is distorted by regular monitor refresh rates, resulting in distinct visual tearing. In the case of Nvidia's G-Sync solution, the feature will be tied into the company's graphics cards.

The other solution is from non-profit corporation, Video Electronics Standards Association (VESA) who released

the DisplayPort technology in 2009. The company has also introduced it's AdaptiveSync technology which seeks to provide a smoother visual experience by matching the render rate of the graphics card to the display's refresh rate on a frame by frame basis. As of now, AMD has partnered with DisplayPort to take on Nvidia for more dynamic refresh rates and a superior PC user experience. In the long run, it's clear sailing (and gaming) for all users.

**DDR4 Memory:** Dynamic computer memory modules get faster and larger with each generation and the emergence of the fourth generation- DDR4 SDRAM- is an inevitable part of the computing evolution. In fact, the new Intel Xeon E5-2600 v3 chip servers that are expected to be rolled out soon are the first machines to be supported by DDR4 memory.

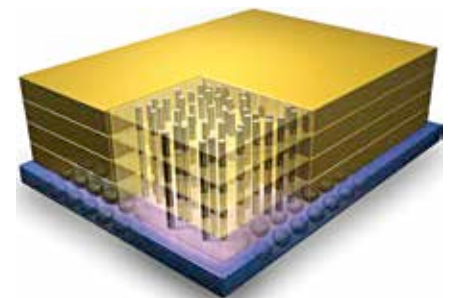
The new memory modules provide up to a 50 percent increase in bandwidth along with a 35 percent reduction in power consumption when compared to DDR3 modules. The new specifications will allow computer systems to have rapid internal data transfer speeds with massive support for digital RAM based applications such as databases. The first of the consumer modules are from a few brands like Corsair and G.Skill, starting from the DDR4 2133 MHz module with speeds in the 2400 MHz, 3000 MHz, 3200 MHz and 3300 MHz range. Given the high speed, low energy and low heat capabili-

ties of the DDR4 design, the performance, even when overclocking systems for gaming, is estimated to be faster than we've ever before.

### Micron's Hybrid Memory Cube:

Even as the world gets ready to bask in the speedy goodness of DDR4 memory, Micron Technology is readying a new form of computer RAM. The Micron Hybrid Memory Cube or HMC makes the use of 3D stacked packaging of multiple memory modules in sets of 4 or 8 units per package with the use of "through-silicon vias" or TSV and micro bumps for linking the memory units. This design form allows the stacking of memory chips into cube shapes alongside each other on a motherboard. This basically allows more data banks than the traditional format of the same size.

As a proposed alternative to the typical DRAM modules that people are aware of already, the HMC system would radically shift the market landscape. With



This as yet experimental DRAM module has shown promise and may be the next big thing in computer technology.

predictions of over 15 times the normal bandwidth and 70 percent lower power consumption compared to DDR3 RAM, it may even leapfrog the DDR4 standards by early 2015.

With newer form factors and user fixation being diverted to whatever is new and interesting we get the impression that PCs are no longer in vogue. But considering the amount of innovation and progress being made in the PC space, in every aspect of design, manufacturing, technology development and deployment, we know different. Death is a state when all vital process' come to an end. The PC is not dead, it hasn't even slowed down. The PC is infact vitality- commodified. **d**



The new DDR4 memory modules surpasses all expectations and usher PCs into the next generation.



### Lesser brain

A CAT scan revealed that a woman didn't have an essential part of her brain – her cerebellum. <http://dgit.in/NoCerebellum>



### Where's my drone?

Screamy - a product from a kickstarter project, lets drones scream out their location when you lose them. <http://dgit.in/Screamy>

Space Age

# Harvesting

## A Future Among the Stars

Humanity is destined to grow beyond Earth but how will it grow its most basic needs? We take a look at the issues of space farming for space faring humans.

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**T**he 1960s were a remarkable period for many reasons. As the Americans on one side of the world looked upwards to journey through the stars, the other side of the world looked to the barren ground – praying for food. The reality was stark as hundreds of millions of people in Asia and Africa were reduced to taking handouts from the Western nations. India as one of the most populated countries in Asia was predicted by biologist Paul Ehrlich in his bestselling book *The Population Bomb* as incapable of feeding its population and would ultimately result in mass starvation. He was right.

But by the time his book came to print in 1968, a wave of change had already begun in India and other parts of the world. American biologist Norman Borlaug was already seeing success in the fields of India with his new strain of dwarf wheat.

As an ever present famine reigned and brutal war broke out between India and Pakistan in 1967, Borlaug's team of Indian and foreign scientists were working away under intermittent glow of artillery flashes to continue planting new test crops. The rate of success was staggering – by 1974 India was self-sufficient in all cereal production and the lives of over a billion people were saved.



Norman Borlaug was awarded the Nobel Peace Prize and the Padma Vibhushan – credited for having saved a billion lives.

### To Space: "For bread and for peace"

The Earth can't sustain humans. It's a reality we have long since known and ignored. At the rate with which humanity has spawned, spread and squandered the resources of the planet, it is really a surprise that we haven't already been wiped out. Most of the mitigating efforts of the past few decades due to concerns over the nexus between climate change, drought, famine, disease and human activities has perhaps slowed our decline. But it is an inevitable one. And as with all periods of hopelessness in human history – it is nothing but human innovation that can rescue us as a species.

Norman Borlaug in his Nobel Prize speech emphasised the role of peace in an otherwise radical world. With the Population Monster rearing its ugly head and climate change an ever present threat – could there be any more of a unifying challenge which can compel humanity to rally together? The quest to take humanity to the stars, to colonise planets and satel-





## Not a mass extinction

The impact that might have killed off the dinosaurs, could be the one that actually shaped the way for today's plant life on earth. <http://dgit.in/MassExtinction>

## Chew to power up

A pair of researchers from Montreal have created a headset that harnesses the power of your jaws. <http://dgit.in/JawPower>

lites, to launch generational ships towards distant stars and create a new existence beyond Earth may seem to be just whimsical fancies – but its worth remembering so was the hope to feed India. It is only after it has already happened that we realise what is really possible.

The challenges facing sustainable human agriculture in non-Earth environments isn't however an intangible spiritual challenge. With significant problems and issues to be overcome in multiple fields of astrophysics, biology, genetic engineering, propulsion sciences, energy management and structural design we can only begin to scratch at the surface of what needs to be done. But it's a fun itch to scratch.

### A Meal Fit For the Kings

Since the beginning of human space-flight and exploration food has been but another passenger on the journey. Precisely calculated rations for each crew member are a given cargo on every space flight with enough left over in case of emergencies. But with a launch cost of USD 13,000 (₹ 7,90,000) per kilogram on the Atlas V rocket it is perhaps fair to say that it is the most expensive meal eaten by any human. And even with the reduced launch costs from private space launch companies like SpaceX – at USD 4,000 (₹ 2,44,000) it's worth noting that we're still only floating in low-earth orbit at a maximum of 2,000 kilometers. Our ambition for the future is something a bit further.

Given these realities, the goal of implementing an inter-planetary human space mission can't possibly be contemplated with any seriousness until we have found a solution to the problem of feeding our passengers. In this light the idea of space farms and ecosystem vessels is highly appealing to both – our imagination and our accountants. The quest to build a sustainable environment within a space ship may seem ironic given how we treat our planetary ecosystem but it is the only viable option. Since plant based ecosystems are perfectly suited to create nutritious food, provide waste recycling, air and water purification, and further human psychological comfort – most research is dedicated to this goal.



Earth plant life is a product of complex inter-reactions over millions of years – adapting them for space is an uphill challenge.

All life, especially plant life, on Earth has evolved over millions of years under specialised factors such as solar energy, soil type, ecology, gravitation and other evolutionary laws. Only during the last few hundred thousand years of human civilization has an artificial process been developed to alter this natural trend. Techniques like selective breeding and genetic modification are the most recent of these experiments and even today, we are far from truly controlling all aspects of artificial agriculture. Under such circumstances, the problems associated with growing the simplest of vegetables can prove daunting.

### Star Trek: The Search for Spinach

Plant life is affected by Earth's astrophysical attributes such as the gravitational forces and variable sunlight access. Any place in space would therefore offer radically different physical environments for which plant life would need to be adapted. The closest planet where we can consider setting up a "space farm" would be Mars, which receives just over half the solar energy as Earth does but is a vacuum environment. Cosmic greenhouses could compensate for the lack of atmosphere in its initial set up but the radically variable solar energy spread out across the planet would remain a challenge to any real plant growth. On the other hand, any location such as an orbiting station or Moon based greenhouse would receive significantly higher solar radiation than the Earth due to the absence of a pressurized atmosphere. As of now, no single crop could be adaptable to either or both of those extreme environments.

And referring back to the simple issue of gravity, we know that plants are dynamic organisms that have fluids flowing within them in one form or the other. Whether it's in their xylem or phloem, or within their cellular structure, the process has evolved to work in accordance with gravitational laws which would not be the same anywhere other than on Earth. In addition to this issue, the sheer vulnerability of non-Earth environments to other forms of cosmic radiation is also a perilous problem. Without the protective cover of an Earth like environ-



Mars is the closest and most likely option for humans to colonise and begin agricultural activities.





### 3D printed lock pick

3D printed slices of plastic or metal to form skeleton keys can pick high-security locks. <http://dgit.in/3DPrintKey>



### Spaceship Comparison

At Deviantart, a comparison chart has been created with all the sci-fi spaceships and real ones too. <http://dgit.in/SpaceshipChart>

Space Age

ment, the bombardment of radiation can very well turn all potential plant life inert. Given just these basic handful of problems, the task of developing astro-agriculture is a search into the unknown but it is a search we have already begun.

### Astroecologist of the Galaxy

The historic research in space agriculture has proven that growing food is a possibility off-planet but demands very high control over the conditions. The International Space Station has been the key setting for these tests and have shown promise on the front. Using the American and Russian developed Lada hardware (Lada is the ancient Russian goddess of spring) aboard the International Space Station, scientists

may arise out of such plant varieties such as change in their genetic make up due to radiation and impact on the space station itself due to environmental adaptation. Mitigating research such as using LED lights to provide specific radiational wavelengths is also being considered.

Since past experiments have shown certain risk factors such as the stress effects of low-gravity environments on plant genetics and appearance, the Lada hardware is critical to this experiment. As this project develops, the goal for astronauts aboard the space station is to grow edible food of their own. This would be an exponential leap towards a feasible long-term space mission which would be self-sustaining with respect to food.

limited finite resources within a closed system, every drop of water from the toilet to the shower is essential. GreenHab systems researches ways to purify and filter out water contaminants which could jeopardise any space mission.

The facility plans to grow high nutrient vegetables in the most limited and resource negligent environments. By growing hardy carrots, radishes, tomatoes and other vegetables along with hydroponic based plants, GreenHab is the testing lab for new varieties and systems of agriculture that can be used on other planets. Independent research programs are also proving to be excellent grounds for space based farming. The most important of which is astroecologist and chemistry professor Dr. Michael Mautner's (Ph.D.) method to grow asparagus, certain fungi and potatoes on meteorite materials. By leveraging the materials abundant in meteors and asteroids such as nitrates, phosphates and water, his method of melding plant growth with extreme-environment microbes growth within a space environment could prove critical to any future ideas for terraforming environments.



While Russians on the ISS sample their grown vegetables, the US harvest is sent to Earth labs for microbe testing.


have observed and studied nearly 500 different plant species. Their most promising project – Validating Vegetable Production Unit Plants, Protocols, Procedures and Requirements Using Existing Flight Resources is currently underway with the goal of optimising the infrastructural hardware and agricultural methodologies aboard the space station.

The project will hopefully identify the varieties of vegetables and flowering plants that are most suited for nutritional and environmental needs. The experiment also takes a very close look at any risks that

Other Earth-bound experiments that seek to address the same challenges of space farming are being conducted in greenhouses such as the GreenHab project. The GreenHab project is a large cylindrical greenhouse 5 metres in height and length, being developed as a part of the Mars Desert Research Station. The facility is being used primarily for the purposes of developing a Mars based greenhouse and a grey water processing unit. Grey water processing is the means by which scientists hope to recycle and reuse waste water that is created. In a space environment, with

### "I am zucchini - and I am in space"

As NASA plans its mission to Mars by the mid-2030s, other techniques such as artificial nutritional supplements and even 3D printed food is being explored. Although both these ideas have proven to be effective on Earth they may be insufficient in outer space. The benefits of grown food are not simply a matter of utilitarian use for energy in the human body but also essential for the growth of comfort – both psychological and physical called horticulture therapy. A fun and interesting method of documenting these factors was witnessed in the 2012 blog – "Diary of a Space Zucchini" by astronaut and space-farmer Don Pettit.

Food in whatever form has over thousands of years become a part of human culture which holds people together in a sense of community and family. From the farmers who till the soil to the chefs who make the cuisine – food unifies all people in an ephemeral manner and even though people like to say armies march on their stomachs, its truer still that humanity dreams on a full stomach. Let's get growing. We are Groot! 

**Bazaar**

The latest and greatest products reviewed to help you decide what you want to buy

**Storyteller for kids**

TROBO is a storytelling toy robot which, alongside an iPad app, teaches kids about science and maths <http://digit.in/TROBO>



# 2-in-1 Hybrid Hype

The post-PC era is full of 2-in-1, hybrid devices. Devices that are half-tablet, half-laptop abound in the marketplace, confusing customers with choices. Should you buy one? We test the suspects.

Jayesh Shinde  
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**W**e remember the moment clearly. At COMPUTEX 2013, in the month of June, Taiwan, Intel showed off a variety of 2-in-1 devices at its booth. They were that many in number, these 2-in-1 hybrid devices, that it clearly outnumbered any other attraction at Intel's booth. That was a watershed moment in the independent evolution of tablets and laptops and the story of their inevitable convergence.

Over a year later, we are happy to say that hybrid devices are now becoming mainstream items in manufacturers' portfolio of computing devices offered to customers. They aren't that widespread yet, but you'll be hard pressed to find an electronic store that doesn't house at least one exhibit.

Hybrid devices are nothing but laptops with tablet features or a tablet attached to a laptop base. Whichever way you look at hybrids, they're here to make our life easier (so they say, eh) and give us enough reason into investing in a device which is more than it meets the eye.

In the following pages, we've pitted six hybrid laptops against each other, which represent the best offerings at their respective price brackets. From a detachable screen laptop that sells under 35k mark to 360° rotating-hinge industrial design marvels that transform from a laptop to a tablet within seconds, we have something to whet everyone's hybrid device appetite.

Who should buy a 2-in-1 device, you ask? Anyone who needs a laptop first or is interested in buying a tablet with an attached keyboard. Because that sort of open mindedness is necessary to not be disappointed in

your purchase. While all hybrid devices are technically laptops, not all of them are tablets in the strictest sense of the word. In the attempt to combine the best of both worlds, there are a few points to remember about these 2-in-1 devices. First off, Hybrid devices that are below the 50k mark, don't offer good performance for a laptop. They're also slightly bulky, so are hybrids with 15-inch screens, and uncomfortable to use as traditional tablets meant for single handed use — unless these hybrids have detachable screens. Overall, there's plenty to be excited about with the



## Sealing bullet wounds

The next time you have a bullet hole, RevMedx's syringe would be able to seal them using high tech sponges <http://dgit.in/BulletHoles>

## GIFs on your wall

If you want to put up animated photograph and graphics over your wall, you have Canviz. Nothing else will do.

## Hybrid Laptops

dawn of this era of hybrid laptops. With time and continued human ingenuity, the hybrids will evolve into sleeker, more powerful devices, promising to do a lot more than we can ever think of right now. Until then, we have these.

## ASUS Transformer Book T100T

When it comes to size and unrestricted ultraportability, look no further than the Transformer Book T100T featured in this comparison. It's a cute little hybrid device which comes with a 10-inch multitouch screen fused to a keyboard through a locking mechanism at its spine with no hinge. The overall build of the two devices isn't bad, it's good, and the detachable screen and keyboard dock are made of decent plastic. And the whole thing is just over 1 kg in weight, fits nicely in a backpack or a large purse, and easy to stow away. However, the locking mechanism that holds the screen and keyboard together isn't the best we've seen in a hybrid device. Also, the button used to release the screen from the keyboard isn't one of the best, and could've been better.

The most important thing about the ASUS Transformer Book T100T is the fact that there are two different parts of the device and full of built-in battery in both of them. This helps, and also shows in our battery test, with the Transformer Book T100T flying past the competition, clocking in a whopping 7 hours in our high-performance benchmark test. This is head and shoulders above all the other hybrid devices we've compared in our test this month. By far, this is the most redeeming aspect of the ASUS Transformer Book T100T, according to us. In every other aspect, this device is

## HOW WE TESTED

**Initial setup:** Since hybrids are largely laptops with the ability to morph into tablets, we largely tested them just like any other laptop we benchmark. All hybrid laptops to be tested are first examined and everything about them is catalogued, including bundled software, accessories, etc. We then completely wipe all data on the laptops and install a copy of the Windows 8.1 Enterprise Edition. Drivers and essential software are installed from the manufacturers' website before running Windows update. This is done to ensure that the laptops don't have any bloatware or trivial apps, only essential drivers that will help the device's hardware to run at optimum performance without any software bottlenecks. Finally, the devices are set to run in performance mode in the BIOS as well as in the power options. After this, the hybrid laptops are ready to go into the grinder of our performance benchmarks.

**Performance tests:** We conduct a whole series of tests on the devices to measure the impact of every aspect of the system on overall performance – tests that stress the laptop's CPU, RAM, GPU, hard drive, screen, thermals, battery, and more. These tests include industry standard benchmarks including (and not limited to) Futuremark's PCMark 8 and 3D Mark, MAXON Cinebench, and others. We use PCMark 8's Creative test suite to evaluate battery life of each laptop, as well. Results are carefully catalogued. Screen brightness and contrast ratio is measured using the Spyder3 Elite test unit.

A series of subjective testing is also conducted that scores aspects such as a laptop's keyboard, touchpad, palmrest, screen readability, onboard speakers, look and feel, among others. These tests help complete the gamut of objective benchmarks with real-world test scenarios, allowing us to take a fairly homogeneous look at the laptop's overall performance.

The final performance score is arrived at which includes the weighted sum of all the scores catalogued. Weights are assigned based on the perceived importance of the components. For example, since gaming doesn't really matter or all that important on a business laptop, gaming benchmarks and scores from them are of lesser importance here than they would be on a home entertainment or gaming laptop. Stuff like battery life, screen brightness, CPU performance will be of significantly greater importance in a business setup.

**Features score:** The features present in each Ultrabook are tabulated and given weighted scores depending on perceived importance. For example, dedicated multimedia keys and volume keys are given more weightage than those that are shared with Fn keys.

**Design and Usability:** The scores for this parameter are largely subjective as they indicate our experience with the device. Items such as quality of the keyboard, responsiveness of the touch-screen, etc. are weighted and scored. In the case of hybrids, we gave devices that had detachable screens slightly higher points compared to devices which had swivelling or rotating screens. Devices that came with a dedicated stylus got higher points, too, because it made interacting with them that much more simpler.

**Final score:** The final score that we arrive at is the sum of the performance, features and design scores with a 40%, 30% and 30% weightage, respectively. This is not a fixed weightage, and depending on the category of laptops we're testing, these weightages can be different.

**A note on winners:** The Best Buy laptop is awarded to the device with the best price to performance ratio based on a pre-determined formula. This is the ideal, value for money product in the test. The Best Performer award is awarded to the device with the highest overall performance score. The Editor's Pick award is awarded to the device that the reviewer feels is the best product that offers something extra or unique that none of the other laptops have. The Editor's Pick is an entirely subjective award, the decision for which is based on the reviewer's experience while testing the products.

either average or mediocre, but when it comes to battery life, it impresses like no other.

What else can you expect from a netbook? In all honesty, that's what the ASUS Transformer Book T100T is at the end of the day. Just a glorified netbook with a detachable screen which can be used as

a Windows 8.1 touch-enabled tablet. You can't do a lot with it, if you're considering to buy it as your primary mobility device – just email, working on Microsoft Word, listening to music or watching YouTube videos. That's about it for this one, nothing more that is resource-intensive. And that's

probably the biggest shortfall of the ASUS Transformer Book T100T. But at its price, it's unrealistic to have a high-performing machine anyways, so we can't fault the Transformer Book T100T overmuch.

The ASUS Transformer Book T100T isn't a laptop-tablet hybrid, it's a netbook-tablet



## Smart grill cooking

The Palate Smart Grill lets you grill your food based on weight and composition via your mobile device <http://dgit.in/PalateGrill>



## Enter GALAX

Galaxy which is a graphics card manufacturer, merges with its European brand to form GALAX. What will come of this, we wonder?

hybrid. And people who're okay with that, understand its pros and cons, and are willing to live with it can very well go ahead and purchase the product.

## HP Pavilion x360

As soon as we unboxed this device, it had us mesmerized in its reddish glow (no, not really!), and it's definitely a visually captivating product. The Pavilion x360 has a premium matte finish on its screen lid – with a metallic HP logo flashed across its centre – its side edges, and bottom panel. This gives the hybrid laptop a truly premium look and feel that's distinctly different and unique than other devices compared here. Might we add that this cutesy, bubbly, and colourful look of the device makes it an ideal device for the young, hip generation – also females.

It's a well-built device as well, with a 360-degree hinge which allows its screen to rotate

and rest on its back panel, much like the Lenovo ThinkPad S1 Yoga and Yoga 2. It's touch-enabled display adds to the ubiquity of the hybrid device and convince users of its tablet and laptop usage modes. Like the Lenovo Yoga hybrids, this Pavilion x360 specimen has various usage modes, too: laptop, tent mode, tablet, and everything in between. This definitely adds to the initial excitement of using the product and coming to grips with its myriad features and modes. While this works very well in both modes, we still think this is predominantly a laptop which comes with the added bonus of a built-in tablet.

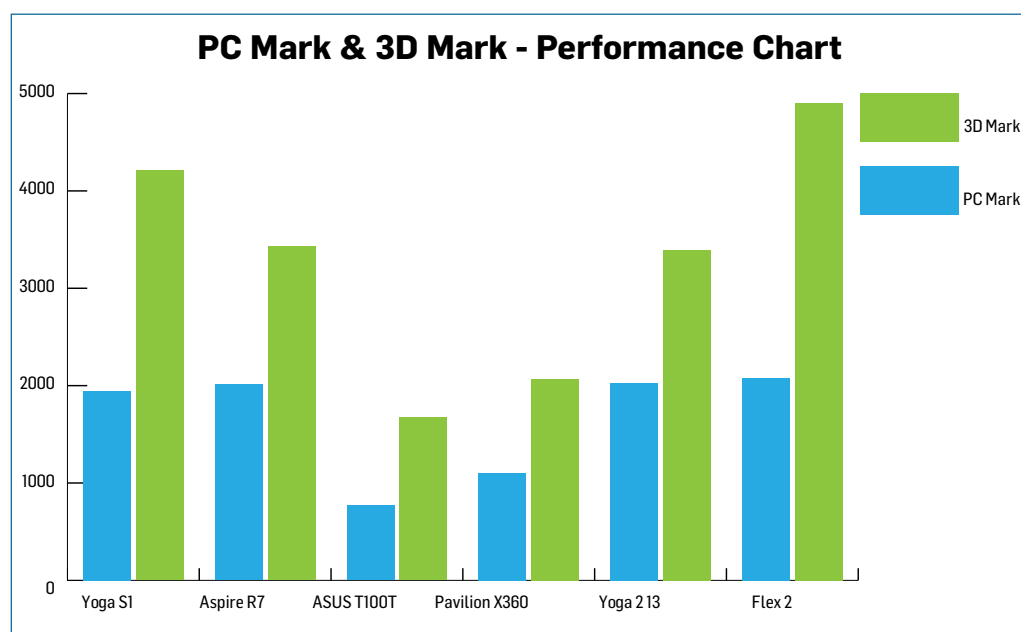
The Pavilion x360 comes with a slightly better hardware combo than the ASUS T100T, and nothing better than the rest of the devices featured here. Apart from that little hiccup, the HP Pavilion x360 is a good laptop to use for basic, day-to-day stuff – like checking your emails, watching YouTube videos, working on Microsoft Office or Google Drive, listening to music, etc. Equipped with Beat Audio, it does have slightly

better onboard audio compared to most hybrid devices featured in this comparison test. It's battery performance is pretty good, too, lasting 3 hours at high-performance preset. You can easily get more than 5 hours of battery life on a conservative power plan, which is pretty good for a laptop selling at 40k. Overall, this covers all bases efficiently, including look and feel, without going overboard on the price, and is worth recommending to our readers if they're interested

in buying a hybrid that's largely a laptop. Also, its better-than-average onboard audio has to be a hit with people who like that sort of thing, we guess. All in all, a pretty good combination.

## LENOVO THINKPAD S1 YOGA

In terms of looks and design, the S1 Yoga is every inch a ThinkPad. It's not a glamorous, drop-dead gorgeous looking device, but its industrial dark gray look with a matte finish



The ASUS Transformer Book T100T's USP? Detachable screen.



The HP Pavilion x360 is an affordable hybrid device with a 360-degree rotating hinge. It covers all bases, efficiently, with appealing looks.

## Android flip phone

For the older crowd, LG has come up with the Wine Smart which is an android powered flip phone  
<http://dgit.in/LGWineSmart>



## Decoding the earth's surface

There's an algorithm which can collect data about the state of the earth's surface using satellites or aircrafts  
<http://dgit.in/SurfaceAlgo>

Hybrid Laptops

all around works for the people it's targeted at. What's more, it's functional design that's both rugged and innovative. Its unique 360° hinge design is the Yoga's crowning glory, giving the ThinkPad laptop the ability to morph into a tablet. What's interesting to note is the fine attention to detail given to the Yoga's overall metal exterior. For e.g., when you seamlessly tilt the screen all the way back to use the machine in tablet mode, the keyboard's raised keys are pulled in so that they merge into the same plane of the deck. The S1 Yoga is 1.6 kg and exudes great confidence in its build and design.

The ThinkPad S1 Yoga is primarily a business laptop, and to that effect it's great, similar to ThinkPad X-series ultraportables we've seen in the past. But we like the enhanced changes it sports, the raised tiled keyboard and the single-slab touchpad with a nice haptic feedback. In the tablet mode, the keyboard switches off, and you interact with the device like a regular tablet. You can either touch and feel the screen with your fingers or use the smart stylus (which snugly slides into the chassis) to either write notes or point and click. Both ways work very well, due to Windows 8's native touch-input support, on the S1 Yoga, and the stylus is especially one of the better ones we've used. However, using it solely as a tablet, the form factor of the ThinkPad S1 Yoga isn't close to ideal yet, as this laptop-tablet hybrid does feel too heavy to use compared to a full-fledged 10-inch tablet that doesn't come with some of its baggage.

The spill-resistant keyboard with island-styled raised keys is a joy to type on, not to mention the trackpoint stick addictive as ever once you get to used to

it, and the palmrest is much improved in terms of response, texture and performance. The only mild disappointment here is the placement of the Function key on the bottom left corner of the keyboard, traditionally where the Control key is. It's just a question of retraining your muscle memory, something that is a bloat on the otherwise fantastic keyboard.

In terms of pure performance, the Lenovo ThinkPad S1 Yoga provides good overall performance. It has a low-voltage CPU which can multitask with 4-5 apps at once, but can't really set the stage on fire. Where it does surprise is its nice screen quality – not the brightest out there, but it has very good contrast ratio, reproducing very good black levels, making it good for watching movies and reading text (anti-glare coating works like a charm under bright lights, too). The in-built speakers are good for personal entertainment, as they're both loud and largely distortion-free at high volume. But most importantly, the ThinkPad S1 Yoga's battery



If you can spend up to ₹60k, the Lenovo Yoga 2 is well worth the money, justifying the purchase with its unique design and high performance

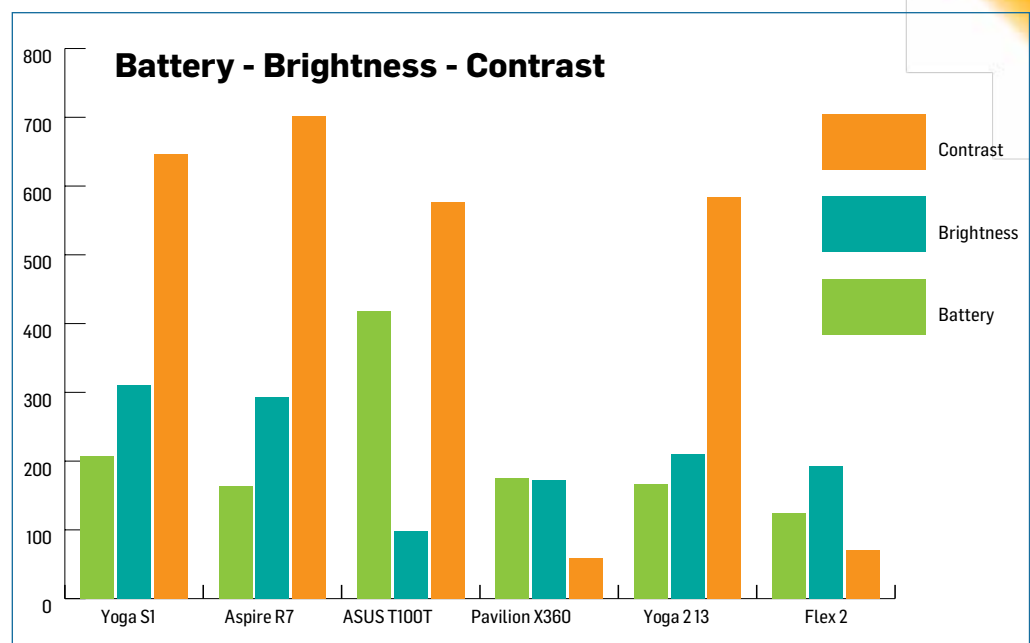
life is among the best we've pegged in a business laptop, lasting over 200 minutes in our tests, and we think it should last at least over 6 hours of standard use on a single charge.

The ThinkPad S1 Yoga is a very good attempt to mould an iconic laptop into a functional tablet. It's still a bit heavy to use and operate in tablet mode only, but if you look at this primarily as an ultraportable ThinkPad

with the added bonus of turning into a Windows 8 tablet, and the experience is one of the best.

## Lenovo Yoga 2 13

The Lenovo Yoga 2 is one of the few devices to offer a platform that elegantly embraces Windows 8's touch-friendly (or unfriendly, depending on your perspective) UI. As all of you must be aware by now, the Yoga's 360 degree hinge



## Blaupunkt India coming

Blaupunkt, which is a leading car infotainment brand, is extending its support program for retailers in India



## Seatylock to the rescue

A Kickstarter project wants to give you Seatylock that turns your seat into a lock for your bicycle  
<http://dgit.in/Seatylock>



Brand	ASUS	HP	Lenovo	Lenovo	Acer	Lenovo
Model	Transformer Book T100T	Pavilion X360	Flex 2	Yoga 2 13	Aspire R7-572G	ThinkPad Yoga S1
Price	₹34,090	₹39,990	₹49,990	₹59,990	₹99,999	₹1,16,400
Warranty	NA	NA	NA	NA	NA	NA
Features (of 30)	14.87	14.10	15.09	16.20	16.92	18.45
Performance (of 40)	13.16	12.89	20.05	22.42	25.70	20.31
Build and Design (of 30)	13.80	14.48	17.25	18.14	18.16	20.86
Overall (of 100)	41.83	41.47	52.39	56.76	60.78	59.63
CPU	Intel Atom Z3740	Intel Pentium N5320	Intel Core i5 -4210U	Intel Core i5 -4200U	Intel Core i5 -4200U	Intel Core i5 -4200U
RAM (GB)	2	4	4	4	8	4
Graphics	Onboard	Onboard	Discrete + Onboard	Onboard	Discrete + Onboard	Onboard
Switchable Graphics	N	N	Y	N	Y	N
SSD capacity (GB)	0	256	0	0	0	0
HDD Size (GB)	32GB	500GB	500GB	500GB	1TB	1TB
Bundled OS	Windows 8.1	Windows 8.1	Windows 8.1	Windows 8.1	Windows 8.1	Windows 8.1
Screen Size (Inches)	10	11	14	13	15.6	12.5
Touch Screen? (Y/N)	1	1	1	1	1	1
Screen Resolution	1366x768	1366x768	1920x1080	1920x1080	1920x1080	1920x1080
Weight (kg)	1.1 kg	1.4 kg	1.89 kg	1.6 kg	2.5 kg	1.6 kg
No of USB 2.0	0	2	3	2	1	0
No of USB 3.0	1	1	1	1	2	2
(LAN / Bluetooth / Wi-Fi)	No/Yes/Yes	Yes/Yes/Yes	No/Yes/Yes	No/Yes/Yes	No/Yes/Yes	No/Yes/Yes
DisplayPort / VGA (Y/Y)	N/N	N/N	N/N	N/N	N/N	N/N
HDMI out	0	1	0	1	1	1
Headphone/Mic/Combo	Yes	Yes	Yes	Yes	Yes	Yes
Wireless Keyboard & Mouse?	0	0	0	0	0	0
Memory Card Reader	Yes	Yes	Yes	Yes	Yes	Yes
Fingerprint scanner?	N	N	N	N	N	N
Optical Drive (Y/N)	N	N	N	N	N	N
Inbuilt Webcam (Y/N)	Y	Y	Y	Y	Y	Y
Recovery Discs/Media	Y	Y	Y	Y	Y	Y
Benchmark scores						
PCMark 8 (Creative)	770	1106	2081	2027	2011	1945
3D Mark (Ice Storm)	16,735	20,706	49,029	33,897	34,302	42,098
Sniper Elite V2	5.1 fps	5.1 fps	26.5 fps	8.9 fps	55.6 fps	13 fps
Peacekeeper	1042	1183	4101	2718	3525	4389
WinRAR (KB/s)	1572	2000	2971	3352	2953	3196
Battery (minutes)	418	175	125	167	163	207
Screen brightness (cd/m2)	98.71	172.01	192.28	210.24	293.22	310.02
Contrast ratio	576.22	58.86	71.13	584.38	701.47	646.31
Temperature (max)	35	53	64	60	62	77
Build and Design						
Keyboard	4.5	7	8	9	8	10
Touchpad	5	6	7	8	6	7
Tablet mode?	Yes	Yes	Yes	Yes	Yes	Yes
Detachable screen?	Yes	No	No	No	No	No



## Smart grill cooking

The Palate Smart Grill lets you grill your food based on weight and composition via your mobile device <http://http://dgit.in/PalateGrill>



## NSA-proof chatting

A middle-school dropout has developed a chat program that would be safe from NSA's surveillance systems <http://dgit.in/NSAProofChat>

## Hybrid Laptops



The Lenovo Flex 2's screen can tilt upto this angle only. Hybrid enough?

allows the device to seamlessly transition between traditional and pseudo-tablet modes. The device isn't all about the hinge though. It's very well-designed and even without the hinge, is a very capable and feature-rich device that'll give any Ultrabook a run for its money with its support for motion control and hardware volume and factory reset keys. You only get one USB 3.0 port though, which.

Lenovo's always been known to make great laptops and the Yoga 2 is no exception. The hinge is already a Yoga series' trademark and we do love it, but even ignoring it, the Yoga 2 is still quite a beast. The gorgeous screen is one of the first things that hits you when you look at the Yoga. It's about 30% brighter than the rest of the competition and features a great contrast ratio.

Performance figures are a little below average, especially the battery life. Strangely enough, while the maximum temperature hit was only 60°C, the laptop tends to get uncomfortably warm on your lap, which is about the only complaint we have against this device.

## Lenovo Ideapad Flex 2

Some call this the poor man's Yoga and we're inclined to agree. You lose out on the Yoga's 360 degree hinge in favour of a 300 degree (approximately) one. In the bargain, you pay ₹10,000 less, get a slightly larger screen and quite a bit more bulk.

The Flex 2 is definitely not a bad device, especially when you also consider the fact that it comes with a dedicated NVIDIA GPU (not a very powerful one). The Flex however, is overshadowed by the Yoga, which, for a slightly higher asking price, offers much more. Why would you buy a Mazda when you can get a Ferrari?

The Flex 2 is, by itself, quite a decent device and one of the most powerful, owing to the dedicated NVIDIA 820M

GPU. Our performance scores bear that out, with the device performing at least 25% better than most of the other devices here in 3DMark. The battery life did take a hit however.

Sadly, the screen on the Flex 2 isn't the greatest we've encountered, dampening an otherwise great device. We were impressed by the speakers, they're loud and severely lacking in bass, but at least don't distort noticeably at higher volumes. Surprisingly, the Flex 2's keyboard actually feels a tiny bit better than the one on the Yoga 2.

## Acer Aspire R7


You can't talk about the Acer Aspire R7 without mentioning the hinge (or Ezel as Acer puts it). It's an innovative design that attempts to bring the screen even closer to you and make your computing experience more personal. The flexible hinge allows you to position the display as you like, but essentially you can do three things – bring the screen closer to you while working, make it lie flat for use as a tablet and flip it over to use in 'kiosk' mode. The build quality of this 'laptop' is also great, it has a very premium feel to it and the hinge is far from flimsy. You can position the display any which way and the hinge manages to hold it steady.

Coming to the multimedia capabilities of the device, this

laptop can hold its own with the best. The screen is a gorgeous, 1080p panel that is bright and vibrant and very crisp, easily among the best we've seen on laptops so far. The speakers are another bonus, they're Dolby Digital certified and the audio quality is well above average. Plus, you get four speakers as opposed to the usual two, so you can theoretically take advantage of them to watch movies in surround sound. All this, coupled with a battery life of almost four hours at high load makes this a very capable multimedia device. The problem with this device is that we can't seem to see the point in it. It's not like a standard hinge is inconvenient and even though you can flip the display over, why can't you just flip the laptop around as you always used to?

The repositioned keyboard feels awkward on the R7 and it's quite painful to use on your lap when there is no palm-rest, it's fine on a desk though; the keys don't engender much confidence either and feel a bit floaty. This is, undeniably, an excellent device. The hardware is nice, and if you can find a use for the hinge and can get over the touchpad and keyboard positioning, not to mention the large size of the hybrid device, this machine can be worth the hole that it'll burn in your pocket – and the envy of everyone around you.

## Winners

The Acer Aspire R7 is our Best Performer, because of its hardware and large form factor, overall. The HP Pavillion x360 wins the Best Buy Award as it offers a very good combination of looks, design, performance and price. The Lenovo Yoga 2 gets the Editor's Pick Award for being a unique hybrid device with 360-degree screen. 



The Acer Aspire R7 deservedly wins our Best Performer Award

# Bazaar

## THE LATEST PRODUCTS REVIEWED FOR YOU

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

- 10 to 30** **Extremely poor product.**  
Keep away!
- 31 to 50** **Strictly OK.**  
Not recommended
- 51 to 70** **Decent product.**  
Go for it, but there may be better products out there.
- 71 to 90** **Very good product.**  
Highly recommended.
- 91 to 100** **Ground-breaking product.**  
We've never seen anything like it before.  
A definite must buy!

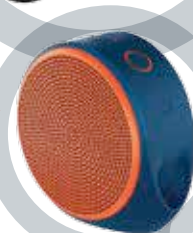
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**Micromax**  
Canvas A1



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**Logitech**  
X100



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**Karbonn**  
Sparkle V



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Chromebox  
CN60



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- 100** | ASUS X99-Deluxe
- 101** | ASRock Z97E-ITX/ac
- 102** | ZOTAC GTX 750 ZONE Edition



### Why can't Chimps speak?

Even though Chimps are really smart, you might have thought why they couldn't speak. Watch this to find out. <http://dgit.in/ChimpsSpeaking>



### Light behaving like a crystal

Researchers at Princeton were able to make light behave as a crystal-like structure on a computer chip <http://dgit.in/LightCrystal>

Bazaar

# Motorola Moto G 2nd Gen

Reminds us of a time gone by

If you look at the Moto G (2nd Gen) on Flipkart and read the specifications, you'll wonder why Motorola launched this device. This is something you realise only after you have the phone in your hand. In fact, this is something that I said in my first impressions of the device as well. The new Moto G is better than the older version. While more changes would have been welcome, but Motorola seems to have gone with the safer proposition to keep the price lower.

The new Moto G has a 5 inch display along with the same polycarbonate back that the original had. The phone looks like a larger version of the original, but Motorola has made this phone slimmer. In fact, the new Moto G is almost like a larger version of the original Moto X, except it doesn't perform like the Moto X. In addition, it also has thinner bezels, which cuts down on the size. The device could easily have been a lot bigger and cumbersome to use, but the new Moto G is quite comfortable in the hand and in the pocket.

Also, as before, the curved back gives better grip on the smartphone and makes the design more ergonomical. The build quality overall is impeccable and the white version of the Moto G looks quite good and seems very sturdy.

The 720p HD display on the new Moto G is actually its biggest weakness. While the Corning Gorilla Glass 3 protection does its job and makes the screen stronger and more premium, it is not the brightest screen you will find. What even more surprising though was the bad sunlight visibility on the new Moto G. The older version wasn't the best either, but it was better than the current version.

The good thing about the screen though is the extra real estate. It is large and makes for good video viewing. That is, unless you're watching videos with your friends, because the viewing angles aren't the best either. Motorola wasn't expected to put a full HD screen on this one, but we didn't see this coming.



Price  
₹12,999

The new version of the Moto G runs on the same 1.2 GHz Qualcomm Snapdragon 400 quad-core SoC and 1 GB of RAM as the older generation. It also has the Adreno 305 GPU and continues the good performance that Motorola gave in the older one. Before you ask, yes, it doesn't compare to the Xiaomi Mi3, which has a much higher Snapdragon 800 SoC and 2 GB RAM.

The Moto G though doesn't disappoint in terms of the performance that you get out of it. The UI doesn't show any lags and resource intensive games like Asphalt 8 and others run quite smoothly on it. There were also no app crashes on the device, be it games or other apps.

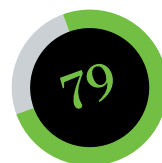
One thing we really wanted for the new device though was a bigger battery. The company went with the same 2070 mAh battery on this as the old one. Even though it doesn't disappoint and we got 10-12 hours out of it quite easily, one wonders if a bigger battery wouldn't have made the buying decision much easier.

One of the upgrades on the new Moto G is the 8 MP camera on the back, as opposed to the 5 MP on the older one. There is also a 2 MP front camera for selfies, video chats etc. Like the old camera though, the rear camera on this one is average. While the 8 MP sensor is better than the old one, it is definitely not the best camera on a smartphone in this range.

The new Moto G upholds Motorola's tradition of providing good value for the price that is being asked. The company beat the old price by Rs. 1000 and frankly, it had to. The new Moto G is a performer and a good phone to buy for Rs. 12,999 but the competition now is much tougher than it was with the last one.

For the brand conscious, you can still buy this phone, but it is no longer the best in class. The Xiaomi Mi3 remains the best in class right now, while the Micromax Canvas Nitro comes in at a close second. What the Moto G has over these two devices is history and brand recognition.

Prasid Banerjee



Features .....	80
Performance.....	80
Value .....	92
Build .....	75

### Specifications

**Screen:** 5-inch IPS LCD;  
**Resolution:** 1280x720;  
**SoC:** Quad-core 1.2 GHz Qualcomm Snapdragon 400; **RAM:** 1GB; **GPU:** Adreno 305; **Storage:** 16GB;  
**Camera:** 8MP rear, 2MP front; **Weight** - 149 gm;  
**Battery:** 2070mAh; **OS:** Android 4.4.4

### Contact

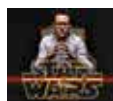
**Motorola India**  
**Phone:** - 1-800-102-2344  
**Email:** [dgit.in/lugOh0Y](mailto:dgit.in/lugOh0Y)  
**Website:** [motorola.in](http://motorola.in)





## Call from the dark

New mystery signals detected by the particle detector on the ISS, points to the direction of dark matter <http://dgit.in/DarkMatt>



## Star Wars set leaked

A half-made Millennium Falcon and a X-wing was captured on the sets of Star Wars by a personal drone which flew by <http://dgit.in/StarWarsLeak>

# NVIDIA GeForce GTX 980

The fully fledged Maxwell GPU packs a wallop

**M**axwell debuted with the GTX 750 Ti and it brought with it quite a few changes. The architecture as a whole was reorganised to make the Streaming Multiprocessors (SM) much more efficient to the extent that lesser number of transistors have resulted in performance similar to that of Kepler. But the GTX 980 is based on Maxwell's second generation and has more features than the 750 Ti and a lot more than Kepler. Here's a brief roundup of the new features.

## So what's new with the features maxwell offers on the 980?

### Dynamic Super Resolution (DSR)

If you are familiar with the process of supersampling (used in spatial anti-aliasing), or the method



of downsampling, where the GPU renders games at higher resolutions, and then scales the image down to the monitor's native resolution, DSR should be easy to understand because essentially it's the same thing.

What used to be a hack ([dgit.in/1C4d89t](http://dgit.in/1C4d89t)) earlier, thanks to DSR – perhaps for the first time ever – comes as a feature built into the driver itself. It lets gamers who don't have 4K or UHD displays (yet) to utilize the extra horsepower of their GPUs to up the gaming experience on their 1080p monitors. Unlike downsampling which sometimes can generate artifacts on textures when certain post-processing effects are applied, Dynamic Super Resolution uses a 13-tap Gaussian filter during the conversion process (downscaling) and is supposed to reduce or eliminate the aliasing artifacts experienced with plain downsampling, which relies on a simpler box filter.

The GTX 980 whitepaper however says, "While it's compatible with all GeForce GPUs, the best performance can be seen when using a GeForce GTX 980."

### MFAA

The next big piece of technology announced was closely related to DSR. While DSR tries to optimise games for scaling in the visual domain MFAA tries to better the performance aspect. In a nutshell, it gives the user the same experience as 4X MSAA at the compute cost of 2X MSAA. How does it achieve that? Well that's a little complicated. Put on your Portal face and read on.

MFAA stands for Multi Frame-sampled Anti Aliasing and is a flexible sampling method available to Maxwell GPUs that tries to push AA quality and efficiency up a notch. MFAA alternates AA sample patterns both temporally and spatially to produce the best image quality.

What MFAA does is it algorithmically flips or mirrors samples of pixel coverage and combines by applying a temporal synthesis filter to create a coverage pattern identical to 4x MFAA. This saves on hardware compute cost.

### VXGI

NVIDIA is confident Voxel Global Illumination is a huge step towards the holy grail of real time computer graphics – path tracing. It is known that rendered scenes start to look closer and closer to reality when GPUs begin to process those millions of light rays, millions of bounces and resultant energy losses in the intensity of light in a scene – all in real time. A tall order indeed. To circumvent this game designers use many techniques such as pre-baking textures or ambient occlusion (commonly referred to as the poor man's global illumination). With Voxelization NVIDIA hopes to bring in game lighting one more step closer to this dream of "true" path tracing.

This is how VXGI works:

Begin by converting an entire scene into voxels (three dimensional pixel). These voxels store two types of information – how much of the voxel is occupied by the actual object and the intensity and direction of light being bounced off that part of the object. This light that is bouncing off is calculated using a new method of tracing called cone tracing. It's more like an approximation or "big picture" approach to replicating diffused light. But it does



## Smartering anyone?

A smartering which is water-resistant, has a touchscreen and wireless charging is currently raising money on Indiegogo <http://dgit.in/MotaRing>



## Maintenance-free bike

Priority Bikes has made a maintenance-free bike that would never need to be repaired again <http://dgit.in/NoRepairs>

**Bazaar**

result in very realistic approximations of global illumination at a much lower computational cost than standard ray tracing.

### VR Direct

Latency is a near killer when it comes to Virtual Reality. In fact it is one of the prime causes of motion sickness associated with any Virtual Reality equipment. To put it simply, the disconnect or lag between you moving your head and the scene being rendered in front of your eyes causes your brain to go “wut?” and behave erratically. VR Direct is an attempt by NVIDIA to bring down this latency in order to truly take VR mainstream; the first and most important step of this would be to up the resolution for current VR implementations to at least 4K. When the screen is so close to your eye, one megapixel per eye is just not enough. For this the latency between SLI (of course you’ll need two of these powerplants) should be zero or near zero.

Using things like MFAA and Asynchronous Ward, VR Direct has managed to bring down latency in the compute stack to 25 ms. The other interesting feature of VR Direct is Auto Stereo which is supposed to allow you to play games that weren’t designed for VR in VR!

### Architecture

Being the flagship the GTX 980 has every single component in a functional state and can be said to be the full implementation of the GM204 chip. Needless to say, lower SKUs will come with some of these components either soft-disabled or lasered out. The GTX 970 which also launched with the 980 comes with 13 SMMs and soon enough within a month we’ll see the GTX 960 launch with about 10-11 SMMs and perhaps a GTX 960 Ti could release a few months later with 11-12 SMMs going by NVIDIA’s history. We don’t have any details at the moment and can only speculate on these SKUs.

As for memory, the GM204 has a 256-bit memory interface with 7 Gbps GDDR5 memory that results in a 224 GB/sec memory bandwidth which when compared to the GTX 780 Ti’s 336 GB/s is quite less. However, with the new architecture comes improvement in caching and compression which has reportedly resulted in about 25% less bytes per frame which means it can effectively carry more data. So the 7 Gbps on Maxwell translates to 9.3 Gbps on Kepler.

### Build

At first glance, the only thing that tells the card apart from its flagship predecessors would be the engraved “GTX 980” that appears on the housing

towards the mounting bracket. Flipping the card around shows us the biggest change with the reference build – the backplate. Yes, NVIDIA has taken it up a notch and covered the rear as to protect the SMD components. NVIDIA has made a small portion of the backplate near the power connectors removable which when pulled out opens up a channel for air to flow from the crevice into the fan of the SLI partner card.

The GTX 980 chucks one of the DVI ports and in its place gives you two more DisplayPorts. You can run four of these ports at any given time or three can be used when your monitor’s are G-sync capable. Also, the vents on the rear seems to have been widened to allow for more airflow. The new design has a honeycomb like structure but with more truss elements for added rigidity. And the last thing to note is that the GTX 980 has two 6-pin power connectors because of the improved power efficiency.

### Performance

The GeForce GTX 980 seems to perform better than every other card that we’ve tested so far on medium settings. On Ultra, it performs at the same level that factory overclocked editions of the GTX 780 Ti does. Computational benchmarks puts the Maxwell architecture in league with the AMD GPUs who’d ruled this arena for quite a few generations. So overall, this card scores better than every other card that has graced the test center with its presence.

Maxwell, does indeed deliver given that it uses less CUDA cores than Kepler to produce the same if not better results. At the end of the day, Maxwell uses lesser amount of transistors, occupies lesser area, consumer lesser wattage to produce better results overall in gaming as well as computational benchmarks.

### Verdict

However, a launch price of Rs.46,000 is indeed surprising and we hear that price cuts will be announced across the entire range within this quarter. This will make this card a really sweet deal to let pass by. NVIDIA aims to target majority of users who’re yet to buy a 700 series GPU. A recent survey showed that 68 percent of steam gamers have a 600 series or older GPU and with the lucrative pricing that the GTX 980 and the GTX 970 have launched this september tells us that these gamers are going to find it hard pressed to not upgrade.

Written with excerpts from Siddharth Parwatay. To understand the new features in detail check out these online articles. <http://dgit.in/gf980> and <http://dgit.in/GTX980>

*Mithun Mobandas*



Performance..... 90  
Value ..... 75  
Build ..... 60

### Specifications

**Chipset:** GM204; **Base clock:** 1126MHz; **Memory clock:** 1750MHz; **CUDA cores:** 2048; **Texture Units:** 128; **ROPs:** 64; **Manufacturing process:** 28nm; **PCIe:** 3.0, 4096 x 2160 digital resolution support, 4 GB Memory; **DirectX support:** 12; **OpenGL support:** 4.4; **Power Connectors:** 6Pin + 6Pin; **TDP:** 165W; **Dimensions (LxHxD):** 267mm x 112mm x 53mm; **Warranty:** NA

### Contact

**NVIDIA**  
**Phone:** 022 4376 4567  
**Email:** <http://www.nvidia.in/page/support.html>  
**Website:** <http://www.nvidia.in>



## Tower in the Amazon Forest

The Amazon Tall Tower is being built in the middle of the Amazon forest to monitor the weather <http://dgit.in/AmazonTTower>



## Airline food delivery

The next time you had a craving for airline food, Air Food One will deliver it to you, but only in Germany <http://dgit.in/AirFoodOne>

# Gigabyte GA-X99-SOC Force

### Overclocking on the X99 with Force

**T**he X99 boards have started arriving and the first one in is the Gigabyte GA-X99-SOC Force. This board in particular happens to be one of their overclocking boards. The X99 platform brings a few changes compared to the X79. This includes a slightly modified socket which no longer supports the previous generation of 2011-pin processors physically. Native USB 3.0 means that you no longer have to worry about which port to choose when sticking in USB bootable flash drives. The main improvement would be the adoption of the DDR4 memory standard. They might be expensive but allow for higher memory bandwidth.

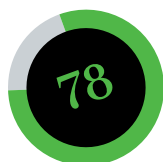


Price  
₹38,000  
(+Tax)

The board has a whole section dedicated to overclocking. There is the OC-ignition button which allows you to keep your fans running in cold-bug conditions and the OC-tag button loads whatever setting was saved to the Tag profile in the BIOS so you can recover quickly in case you had to clear CMOS. Then there is the OC trigger which switches between two different frequencies and then there are plenty of buttons to increase or decrease the CPU ratio and the CPU base clock speed. Moreover, there are plenty of V-check points right next to these buttons so it's a well organised section dedicated for the job.

The GA-X99-SOC Force has support for 4-way SLI and CrossFire with two slots running at x8 and two slots running at x16 which gives more bandwidth but whether that makes a difference is something we need to investigate further. The board's MRP is at ₹38k which going by the feature set that the board gives you is justified.

Mithun Mobandas



Features .....75  
Build .....80

## Specifications

**Chipset:** Intel X99; **Memory support:** 4x3000(OC)MHz upto 64GB; **LAN:** Intel Gigabit Ethernet; **Audio:** ALC1150 7.1; **SATA:** 10x SATA III; **Expansion:** 4x PCIe X16(x16+x8+x16+x8); **Dimensions (LxWxD):** 305 mm x 264 mm; **Warranty:** 3 years.

## Contact

**GIGABYTE TECHNOLOGY (INDIA) PVT. LTD.,**  
**Phone:** 022-40633222,  
**Email:** [sales@gigabyte.in](mailto:sales@gigabyte.in),  
**Website:** <http://www.gigabyte.in>

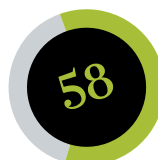
## Digiflip GM001

Could've been better



Price  
₹1,000

**F**lipkart's Digiflip GM001 is a budget gaming mouse with an optical sensor capable of delivering up to 2400 DPI in three steps. The design of the mouse is symmetrical and has a pretty basic button layout as far as gaming mice go. A DPI switch exists at the centre to switch between 800, 1600 and 2400 DPI while three different colour LEDs notify of the selected setting. Added buttons include forward and backward thumb buttons and that's it. Tracking while gaming was a hit and miss and the mouse response was delayed after 15-20 seconds of idle time. It's an affordable gaming mouse but you can get a couple of better performing ones for cheaper.



Features .....47  
Build Quality .....60  
Value for money .....67

## Specifications

**No. of buttons:** 6; **Colour:** Black; **Sensor:** Optical; **DPI:** 800/1200/1600/2400 adjustable DPI; **Cable:** 1.4 metre; **Warranty:** 6 months;

## Contact

**Flipkart**  
**Phone:** 1800 208 9898  
**Email:** NA  
**Website:** [flipkart.com/s/contact](http://flipkart.com/s/contact)

## Portronics Power Slice

Power in your pocket



Price  
₹1,499

**T**he Portronics Power Slice is a thin and light power-bank, weighing in at only 75g. It comes with a small (275mm) micro-USB cable. The device is slim with a thickness of 11mm, and the length and width being 123mm and 69mm respectively, serving well on the portability front. It has built-in protection mechanisms including over-current, over-charge, over-voltage, under-voltage and short circuit protection. You can choose from five different colours; blue, green, orange, black and white. The device has four LED indicators to notify the amount of charge left. With a scratch proof plastic body, worth considering though better options are available.



Build Quality .....52  
Features .....61  
Value .....85

## Specifications

**Capacity:** 4000 mAh; **Battery:** Li-polymer; **Input:** DC 5.0V-800mA; **Output:** DC 5.0V-1000mA (Max); **Weight:** 75g; **Dimensions:** 69 x 11 x 123 mm; **Warranty:** 1 year

## Contact

**Portronics Digital Pvt. Ltd.**  
**Phone:** 11 - 42413131  
**Website:** <http://www.portronics.com/>  
**Email:** [sales@portronics.com](mailto:sales@portronics.com)





### Wireless charging bowl

Intel's wireless charging bowl, where you can charge your gadgets with wireless charging, is coming <http://dgit.in/ChargingBowl>



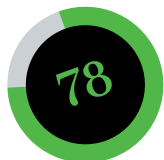
### Ant-Sized Radio

UC Berkely and Stanford researchers have developed an ant-sized radio onto a silicon chip which charges itself <http://dgit.in/AntSizeRadio>

Bazaar

# Micromax Canvas A1

The best budget effort Micromax has ever made



Features ..... 81  
Performance..... 72  
Value ..... 90  
Build Quality ..... 72

### Specifications

**Display:** 480p TFT; **CPU:** 1.3 GHz MediaTek quad-core;  
**GPU:** Mali 400MP2; **RAM:** 1 GB; **ROM:** 2 GB; **Camera:** 5 MP rear, 2 MP front;  
**Battery:** 1,700 mAh

### Contact

**Micromax**  
**Phone:** 18605008286  
**Email:** [info@micromaxinfo.com](mailto:info@micromaxinfo.com)  
**Website:** [micromaxinfo.com](http://micromaxinfo.com)

With Android One, the Canvas A1 from Micromax has a definite edge over its current competitors.

The Canvas A1 reeks of Google involvement on the software front. The fluid stock UI you find on this phone is unlike any other Micromax device.

In fact, the Moto E is perhaps the only other smartphone that provides this kind of feel with the stock Android.

The Canvas A1 is also well built for a budget device. The matte finish on the back and 4.5 inch display make it just the right size to fit in your pocket and use comfortably.

The device is a little on the heavier side, but feels sturdy, like it can take a few falls. Not the screen though, no Gorilla Glass. The Canvas A1 really proves its mettle when it comes to the performance.



Price  
₹6,499

It performs at par with devices like the Moto E and others.

The camera is also quite good, performing well above the Moto

E. Although the Canvas

A1 camera isn't as good as the Xiaomi Redmi 1S, it still takes pretty sharp images and has good white balance and colour reproduction.

The problem with the Canvas A1 and the other three Android One devices though is that you can't operate the camera without inserting an SD card into the device, despite the 4 GB internal storage. This raises the cost of the smartphone to around the Moto E's price.

This device will be amongst the first to get the Android L update, even before the Moto E. So, if you want an inexpensive smartphone that would be updated fast, then you should go for this.

Prasid Banerjee

# Xiaomi Redmi 1S

Value for money is its most redeeming quality

The device isn't the best looking smartphone that you can buy, but Xiaomi has maintained a good build quality. In addition, the Dragontrail glass protection makes the screen practically launch resistant. We tried scratching it with keys, knives and scissors and it help up pretty well.

On the other hand, the lack of one glass solution technology and Gorilla Glass 3 makes the screen feel less premium and plasticky.

The screen though is also the main differentiating factor. There isn't another smartphone in the below 7k segment that comes with a 720p HD display. It is slightly fingerprint intensive though.

The Redmi 1S also has a 1.2 GHz Snapdragon 400 SoC, which is the same as the much higher priced Moto G. The Redmi 1S though doesn't perform at par with



Price  
₹5,999

the Moto G, possibly because of the resource intensive MiUI running on it. The UI doesn't allow more than 400 MB out of the 1 GB RAM that the device has. Also, the Android 4.3 OS is more hardware intensive than the KitKat OS running on competitors like Moto E etc.

This becomes very apparent when you play resource intensive games on this device. It heats up quite easily and often shows lags after heating. There is also a big drop in benchmark scores after heating, showing that the CPU is not performing at its best.

The real strength of the Redmi 1S is in the 8 MP camera at the back. Not only does this take good pictures, it also shoots very good 1080p videos. Overall, the Redmi 1S is a good smartphone and has a lot going for it at the price.

Prasid Banerjee



Features ..... 71  
Performance..... 73  
Value ..... 83  
Build Quality ..... 74

### Specifications

**Display:** 720p HD; **CPU:** 1.2 Ghz Qualcomm Snapdragon 400; **GPU:** Adreno 305; **Camera:** 8 MP rear, 1.6 MP front; **Battery:** 2,000 mAh; **RAM:** 1 GB; **ROM:** 8 GB expandable to 32 GB

### Contact

**Xiaomi**  
**Phone:** 1800 103 6286  
**Email:** NA  
**Website:** [mi.com/in](http://mi.com/in)



## Genome changing organism

Oxytricha trifallax is an organism that doesn't reproduce to increase their numbers but to change their genome <http://dgit.in/Oxytricha>



## Virtual Travel has arrived

While virtual reality was being used in gaming, Framstore has built Teleporter that lets you experience vacations virtually <http://dgit.in/VRVacations>

# ASUS X99-Deluxe

Piling on as many features as possible

**B**oards are becoming more and more feature laden as you go up the price bracket and with the X99 platform the extent to which manufacturers are willing to go to stand apart from the crowd can bring some surprising innovations to the scene. The Haswell-E processors have the voltage regulator circuits for different segments of the platform into one single regulator circuit.

ASUS noticed that there were a few pins holes on the new socket but there weren't missing pads on the processor. So with a little R&D they've incorporated a few extra pins onto the socket to even out the power delivery to the processor. This is to allow greater headroom for overclocking but this won't be around for long since Intel

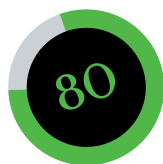


Price  
₹31,300  
(+Tax)

has already announced that they are ditching the FIVR (Fully Integrated Voltage Regulator) in the next architecture.

The board as a whole has plenty of PCIe slots but having four single-GPU graphics cards isn't an option here. But the board is priced lower than the Gigabyte GA-X99-SOC-Force which we looked at this month and comes with a lot of accessories bundled. Moreover, this board has a 1300 Mbps 802.11ac cum Bluetooth 4.0 adapter which makes it a much sweeter deal. However, we'd like to mention that you might want to get hold of the latest BIOS (we used O902) in order to get your memory modules to be recognised properly and the initial BIOS that the board ships with doesn't do a great job at reading XMP profiles of modules listed on the QVL. However, adopting a new platform this early always has its kinks and given enough time all manufacturers will have such minor issues resolved. So nothing to worry on that front.

Mithun Mobandas



Features .....80  
Build .....80

## Specifications

**Chipset:** Intel X99; **Memory support:** 4x3200(OC)MHz upto 64GB; **LAN:** 2x Intel Gigabit Ethernet; **Audio:** ALC1150 7.1; **SATA:** 12x SATA III; **Expansion:** 5x PCIe X16(x16+x8+x16+x8+x8); **Dimensions (LxWxD):** 305 mm x 264 mm; **Warranty:** 5 years

## Contact

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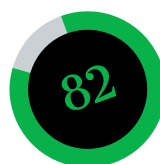
# HTC One E8

The One in new clothes

**I**n terms of body and design, the E8 is quite a looker and we'll be honest, we felt the polycarbonate body is slightly better than metal as it seems to be less prone to scuffs, dents and scratches.

The One E8 runs on Android 4.4.2 Kit Kat with Sense 6 UI on top. This is exactly the same as the M8 and the smartphone also comes with the same lock-screen gestures which were exclusive to the M8.

Running on a Snapdragon 801, the One E8 is one of the most powerful smartphones available in the market. You get 2GB of RAM and 16GB of internal storage



Feature .....81  
Performance .....81  
Value .....83  
Design .....82

## Specifications

**Display:** 5 inches Super LCD3, 1920x1080 resolution with Gorilla Glass 3 (441ppi); **Battery:** 2600mAh; **Storage:** 16GB; **Camera:** 13MP rear with flash, 5MP front; **SoC:** Qualcomm Snapdragon 801; **CPU:** Quad-core 2.5 GHz; **GPU:** Adreno 330; **RAM:** 2GB; **Operating system:** Android 4.4.2 with Sense 6; **Connectivity:** 3G, Dual-SIM, Wi-Fi, Bluetooth, USB with OTG

## Contact

HTC India Ltd  
Phone: 98717892568  
Email: Manu\_seth@htc.com  
Website: [www.htc.com/in](http://www.htc.com/in)



Price  
₹33,500

and you can further expand it via a microSD card. The performance capabilities of the smartphone is at par with most of the high end smartphones and we didn't notice any snags or issues while using the device. The handset manages to run every high-end game with ease.

HTC ditched the duo-camera system which was present on the M8 with a 13MP sensor. Now you don't get the refocusing feature but everything else is available including filters, post editing tools, manual control, as well as Zoe. Picture quality is quite good although we think it could have been slightly better in certain areas. The shutter is super fast and the burst mode really impressed us.

We liked the E8 better than the M8, it offers similar specs in a design that is as elegant and as simple as the metal version. Plus it's cheaper!

Kunal Khullar



## Concept airline cabins

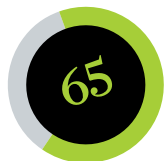
Design firm Teague, with Nike have developed a custom cabin for athletes on airlines, to travel in comfort <http://dgit.in/TeagueNike>



## Drivers being tracked

General Motors is adopting new technology to track the drivers' face and eyes so that they could detect fatigue <http://dgit.in/TrackingDriver>

Bazaar



Features ..... 55  
Build ..... 75

### Specifications

**Chipset:** Intel Z97; **Memory support:** 4x3200(OC) MHz upto 32GB; **LAN:** Intel Gigabit Ethernet; **Audio:** ALC1150 7.1; **SATA:** 6x SATA III; **Expansion:** 1x PCIe X16; **Dimensions (LxWxD):** 170 mm x 170 mm; **Warranty:** 38 months

### Contact

**Mediaman Infotech & WPG**  
**Phone:** 022 - 43441111  
**Email:** manoj\_kriplani@asrock.com.tw,  
**Website:** <http://www.asrock.com/>

# ASRock Z97E-ITX/ac

You'll need long cables to navigate this maze

It's fun to see what manufacturers manage to do with the limited real estate available on the Mini-ITX form factor.

While this board isn't exceptional by any means, it does have plenty of bells and whistles akin to a micro-ATX board. After all, there are plenty of PCIe lanes that simply go unused because of the lack of space to squeeze more components in. So ASRock has made use of the rear-side of the motherboard and placed a M.2 slot which supports both the 30mm and the 42mm add-on cards. However, you either need to have a cabinet with a big cut-out near the CPU cooler or slightly taller stand-offs to ensure that this slot when populated doesn't scrape against the cabinet plate.

The placement of most of the components including the CPU ATX power connector, USB



Price  
₹11,995  
(+Tax)

2.0 headers, fan headers, SATA connectors etc., are quite odd. If you were to install a custom CPU cooler then some of these aforementioned components will be difficult to connect to making these features non-usable. But realistically speaking, this board isn't one which is going to be purchased by an overclocker who'd need such a cooler so you'll easily be able to get the maximum out of this board.

Though we do believe that a better job could have been done to arrange the components. And better cable management matters in SFF computers which make use of such motherboards. This board has plenty of features packed into a small area but lacks better component placement compared to others.

Mithun Mobandas

# Logitech X100

Trendy and performance driven highly portable bluetooth speaker

For a bit Logitech was pushing its Ultimate Ears branded bluetooth speakers in the Indian market. Now it seems the company has diversified its lineup with speakers that are branded Logitech and not UE. This little X100 speaker, which looks sort of like the modern day rendition of a fob chain watch, is one such speaker.

Though the speaker doesn't carry the UE branding, it certainly has borrowed from the design language that UE had created for itself – matte materials, bright colours and large minimalist chunky buttons. All of these elements can be found on the X100. The one we got for review was an orange and blue variant – one of five options available. A bright orange grille and blue body could've made for a garish combo, but surprisingly it looks quite nice.



Price  
₹2,995

The build is also pretty sturdy. We didn't really drop test it but it looks like a device that can certainly withstand a few drops. In terms of performance it's one of the better speakers we've tested in this form factor and price bracket. One of the biggest pluses was that while it's loud, the speaker doesn't overdrive its driver to the point of distortion. The speaker doubles up as a conference call device and the microphone quality is decent. The five hour battery life claim isn't far fetched. Overall the X100 is impressive and the price point is attractive. All of these factors make it a Digit recommended purchase. If at all we have a problem with the X100, it would have to do with its feature set. Few more useful features such as the ability to daisychain other X100s would've been great.

Siddharth Parwatay



Performance ..... 70  
Features ..... 68  
Build ..... 72

### Specifications

**Rated power:** 3 Watts (RMS); **Driver size:** 1.5 inches; **SPL:** >83 dBA; **Frequency Response:** 150 Hz to 20 kHz; **Bluetooth protocol:** 4.0; **Bluetooth profiles:** A2DP, AVRCP, HFP

### Contact

**Logitech Electronic India Pvt Ltd**  
**Phone:** 022 33416111  
**Website:** <http://www.logitech.com/>





## 2TB for your phone

With WD My Passport Wireless you can connect up to eight devices, to store and access data wirelessly <http://dgit.in/WDWireless>



## Gamification of calming down

You can reduce stress and anxiety with the Muse headband, in just three minutes, where meditating is gamified <http://dgit.in/MuseBand>

# ZOTAC GTX 750 ZONE Edition

The original Maxwell is still around



Price  
₹9,999  
(+Tax)

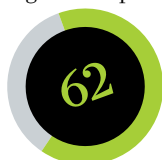
**Z**OTAC's ZONE edition cards are those that only feature passive cooling. With the GTX 750 being a low TDP card having a passive cooler means you can take the power which would generally be consumed by the fan and channel it to the GPU and get more perfor-

mance out. The cooler present on this particular card has a wide array of fins which are held together by two copper heatpipes that go and terminate onto the GPU.

At peak loads we say that the card heated up all the way to 65 degrees Celsius which is comparable to the 60 degrees Celsius which we saw on the 750 Ti and that SKU had two fans and one heat pipe. These temperatures were obtained with as little incidental airflow as we could manage.

Performance-wise it's average, it's not better than the cards from other manufacturers and at this price bracket pretty much every card does the same amount of number crunching so it comes down to which card is the cheapest. Maxwell's flagship, the GTX 980 was recently launched and with that there are price cuts expected throughout NVIDIA's Kepler lineup which will make alternatives like the GTX 660 much more affordable and it'd even make for a sensible purchase compared to the 750 Ti and the 750.

Mithun Mobandas



Performance.....63  
Value .....62  
Build .....60

## Specifications

**Chipset:** GM107; **Base clock:** 1033MHz; **Memory clock:** 1250MHz; **Stream processors** - 512; **Texture Units** - 32; **ROPs** - 16; **Manufacturing process:** 28nm, PCIe 3.0, 2560 x 1600 digital resolution support, 1GB Memory; **DirectX support:** 11.2; **OpenGL support:** 4.4; **Power Connectors:** None; **TDP:** 60W; **Dimensions (LxWxD):** 184 x 144 x 37 mm; **Warranty** - 3 years

## Contact

**Aditya Infotech Ltd**  
**Phone** - 120-4555666  
**Email** - sales@adityagroup.com  
**Website** - <http://www.zotac.com/>

# Karbonn Sparkle V

Simple, stable and affordable

**T**he Karbonn Sparkle V has a 4.5-inch IPS panel display with a resolution of 854x480 pixels which offers vibrant colours and a respectable amount of brightness. The touch-screen response is excellent and we didn't face any issues.

The Karbonn Sparkle V runs on the latest version currently available on most of the Android devices which is version 4.4.4. The UI is stock and exactly like one would see on a Nexus device. You get all the Google based apps as well as the updated version of Newstand which comes with new Indian based content. The UI feels very smooth and it seems that Google has done a god job in providing



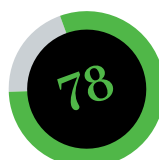
Price  
₹6,399

a bug-free experience on the handset. The smartphone handles games very well and surprisingly we saw a smooth performance when we played Asphalt 8 and Injustice: Gods Among Us on the smartphone. Yes, it does heat up, but nothing out of proportion.

There is a 5MP camera at the back with an LED flash which is capable of shooting 1080p videos. Thankfully auto-focus is available which means you won't be left with blurry pictures. The camera isn't extraordinary but gets the job done. Pictures taken indoors are soft and a bit grainy. Outdoors the pictures come out quite good although the camera struggles at times with correct exposure so it's better to manually adjust it.

If you are looking for a feature rich smartphone, then the Sparkle V will not impress you. Yes there are smartphones with much better hardware but this handset is very stable and with full Google support, worth buying.

Kunal Khullar



Feature .....89  
Performance.....63  
Value .....93  
Design .....72

## Specifications

**Display:** 4.5 inch IPS display with 854x480 resolution (218ppi); **Battery:** 1700mAh; **Storage:** 4GB, expandable via microSD card; **Camera:** 5MP rear with LED flash, 2MP front; **SoC:** Mediatek MT6582; **CPU:** 1.3GHz quad-core; **GPU:** Mali-400; **RAM:** 1GB; **Operating system:** Android 4.4.4; **Connectivity:** 3G, W-Fi, Bluetooth, Dual-SIM

## Contact

**Karbonn Mobiles**  
**Phone** - 011 46604660  
**Email** - info@karbonnmobiles.com  
**Website** - [karbonnmobiles.com](http://karbonnmobiles.com)



## Digital Pen for iPads

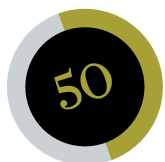
The Bamboo Stylus Fineline is a touchscreen pen that is pressure-sensitive and perfect for digital artists <http://dgit.in/BambooFineline>



## Spaceship Comparison Chart

At Deviantart, a comparison chart has been created with all the sci-fi spaceships and real ones too <http://dgit.in/SpaceshipChart>

Bazaar



Features ..... 50  
Performance..... 60  
VFM..... 40

### Specifications

**CPU:** Intel Celeron 2955U;  
**IGP:** Intel HD Graphics;  
**Memory:** 2 GB (Upgradable to 4 GB); **Storage:** 16 GB M.2;  
**Wi-Fi:** 802.11n; **Bluetooth:** 4.0; **Ethernet:** Gigabit;  
**Video Out:** HDMI, DP; **USB 3.0 ports:** 4; **Weight** - 0.6 kg; **Dimensions (LxHxD):** 124mm x 124mm x 42mm;  
**Warranty:** NA

### Contact

**ASUS Technology Pvt. Ltd.,**  
**Phone:** 18002090365,  
**Email:** reachus@asus.com,  
**Website:** <http://www.asus.in>

# ASUS Chromebox CN60

## Too expensive given the closed environment

We are looking at the Celeron based SKU which is the cheapest one you can get your hands on. Its body is primarily constructed using plastic and the base has thick rubber feet to cushion the device. The heatsink on the processor uses a fanless design and there are cooling vents on the rear and the bottom of the device. Inside the outer casing there is a metal cage onto which the motherboard is mounted so the overall construction can be said to be quite rigid and the cooling is adequate since we never felt the box heat up over a period of continued usage. We can definitely say that the build quality of the device is quite good.

The Chrome Web Store has a plethora of apps that you can use to extend the features of the Chromebox but obviously not to the extent that



Price  
₹ 21,000

would be possible on a workstation so don't get your hopes up.

Since it runs ChromeOS, the Chromebox boots up quite fast, often less than 10 seconds. Since

the environment is restricted to just

a browser there isn't anything that we can benchmark outside the said environment.

Which is why all we did were run browser based benchmarks to judge the performance of the device. Needless to say it is really good at browsing but the underlying hardware has a lot more potential which is not being used.

Would a normal consumer go and buy a Chromebox? We don't think so, it wouldn't make economic sense. So we'd rather wait for a generation or two for the device to mature and start offering better returns for your money.

Mithun Mobandas

# AMD A10-7800

## It's neck and neck with the A8-7600

Say hello to the AMD A10-7800, a slightly downclocked version of the A10-7850K. We'd checked out Kaveri earlier this year and the A10-7800 was only recently released on the same platform.

Architecturally, the Kaveri APUs come with Radeon GCN 2.0 graphics. The A10-7800 in particular has an R7 IGP with 512 stream processors clocked at 720 MHz which is the same as the A10-7850K and similarly has two modules each of which handle two threads. For those who're still in the dark about modules, it was an architectural change brought about to change the number of integer and floating point schedulers to make the best use of the processor's resources and thus led to a few pipelines being shared between threads. So each module can't exactly be called a core.

The A10-7800 computationally performs better than the Core i3-4370 and is neck and neck with the A8-7600 with each getting ahead in certain tests while falling short in others. The GCN 2.0 R7 graphics performs better than Intel's HD graphics but when you compare it to desktop graphics offerings then it lies between the GT650 and the GT620 or between the HD 6470 and the HD 6670.

The A10-7800 also features configurable TDP so if power is an issue then you can always down-clock it and get the TDP all the way to 45W. If you wish to make the best use of this processor you need to ensure that the applications you use are built to make use of the Heterogeneous System Architecture.

Overall, it's a good device, but nothing to go gaga about.

Mithun Mobandas



Price  
₹12,000



Performance..... 68

### Specifications

**Clock Speed:** 3.5 GHz;  
**Turbo Frequency:** 4.9 GHz; **Cores/Threads:** 4/4; **Lithography:** 28nm;  
**TDP:** 65W; **IGP:** AMD R7;  
**IGP Frequency:** 720 MHz;  
**Warranty:** 3 years

### Contact

**AMD (Advanced Micro Devices)**  
**Phone:** 124 469 6000,  
**Email:** mukesh.bajpai@amd.com,  
**Website:** <http://www.amd.com>

**Price Watch**

Find the latest prices for Gaming mice, keyboards, headphones and mouspads

**Killer Rigs**

Looking for a PC configuration to suit your needs? Chose from budget, mid range, high-end and other builds



# Buying like a BOSS!

As strange as it may sound Agent 001 is also big on festive shopping. But as always he applies his analytical mind to the task.

Agent 001

[agent001@digit.in](mailto:agent001@digit.in)

It's that time of the year, dear readers, where it'll be exceedingly difficult to distinguish between fact and faff, while mass buying fever will grip everyone in your vicinity — including you. Deals will reign supreme, both online and offline, one better than the other, enticing nay arm twisting you to buy something or the other, even if you don't need it. Brace yourself, the festive shopping season is upon us!

I'm not impervious to these gadget deal temptations, too. To avoid falling prey to bad deals, I follow a buying habit which I've inculcated in me. Think of it as a code, if you will.

## Research, research, more research!

If there's one thing you can't do enough of before buying a product is research. Whether it's a Rs. 1000 accessory or an HDTV costing a lakh, I do just about the same amount of research before purchasing anything. For me, researching is a habit which can't be offset by how much a product costs. Ultimately, research is just that - research. And it can go a long way to ensure you aren't taken for a ride or face crushing disappointment in your decision to buy something.

## RO-TO-PO

Despite the advent of ecommerce in India, I'm fairly old-school in my buying

habit. While I love the simplicity and convenience buying something online, as much as possible I like to touch and feel the gadgets and gizmos I'm buying. Therefore my mantra here is - Research Online, Test Offline, Purchase Online. Testimonials are no substitute to convincing yourself how a speaker sounds before purchasing it, or the feel of a laptop's keyboard and trackpad. Sure, listen to everyone's advice, but don't be swayed and be your own judge. Like me. This way, you have no else to thank or blame but yourself.

## Multiple windows exist

Somehow, I'm convinced that Diwali and Christmas alone aren't the only two annual occasions where you need to save all year and ultimately spend your money. Throughout this year, I've noticed that occasions like Regional and National Holidays are frequent rally points for e-commerce websites to offer attractive deals and discounts. End of season sales that exist offline have also migrated online, leading to a windfall of deals, if you learn to follow their patterns. I've bought quite a few products during these mini-festive shopping bursts.

The thing to do here is to keep an eye on a product you want to purchase, that you're willing to wait for, and track its price across websites. I do this for almost all my online purchases, sometimes from months in advance. I even use several proxies to throw off popular shopping portals' recommendation engines and customization




algorithms just to ensure I'm not being gamed by the system. It seems to have worked so far, and I'm not complaining.

## Offline matters

Say what you want about offline buying, it still works for me. I still get great discounts from small and large electronic shops, where I know people, relationships that are decades old and not dictated purely by business interests. Online shopping is too impersonal, in that sense, and still can't match up to this offline buying factor. The whole experience is just something else altogether, something that's fast vanishing. I'm not saying ignore online (if I did, I'd be Agent Doofus), not at all – just don't ignore offline stores and their deals, that's all. I wouldn't be surprised if some of them try to offer better deals than e-commerce sites, at least for a few more years while they continue to be a big force and challenges in covering non-metros still remain for ecommerce sites.

## One last thing

Never do an impulse purchase. Never ever. Your biggest enemy in the buying process is you yourself. Be absolutely convinced you need and want something before buying it. 





## Digital Revolution in 2025

A study by McAfee reveals that with security and privacy concerns being prevalent, Indian consumers are predicting a digital revolution in 2025.



## Four new apps from ICICI

ICICI has launched four next generation apps including ICICI Store, Insta Banking, Video Banking and mPassbook to enhance the banking experience for its customers

Agent 001



Gaming laptop extraordinaire?

### Q Gaming laptop: Worth it?

Now, coming to the cause; I am confused between this rig (specification suggested by you) and Lenovo Y50-70 series (i7 HQ processor, hybrid HDD, 8 GB ddr3, 2GB gddr5 graphics, 1080p screen etc, costing around ₹77,000/- in retail market) gaming laptop. I know a desktop and laptop can't be compared on same parance. Still I need your view about which choice would be better based on which factors, keeping aside the mobility issue. And, please tell me as to whether its a myth that gaming laptops can't survive or endure for years as a gaming desktop or its a fact? I am eagerly waiting for your response.

– Nirad Dixit

**A** For those of us who can't splurge on Alienware or ASUS ROG or MSI gaming laptops, the next best alternative is something like the Lenovo Y50-70, which is a successor to Lenovo's Y510p (which I had a chance to play with last year). I have it on good authority that the machine is built for multimedia and gaming enthusiasts, however I personally haven't seen it in action and can't comment on its performance. However, it does have very good hardware packed in at the price.

Mobility is the only variable here that should define your choice whether you want a desktop or laptop for gaming. Nothing else matters.

Companies that make dedicated gaming laptops like the Alienwares, ASUSes, MSIs, and more, of the world do spend considerably on the cooling and structural aspect of the laptop's build, which in turn helps the overall longevity of the device. Purely because laptops

are prone to experience the elements (outdoors, indoors, cold, hot, humidity, blowing air, dust, etc) a lot more than a desktop PC would, they are more probable to wear and tear earlier. But if you don't take care of your desktop PC (clean it, dust it, protect it, etc), it's not going to be bulletproof either. It's unrealistic to expect devices like laptops to be relevant after 3-5 years, and if they last that long without any defect it's some worth cherishing.

### Q Which headphone to buy?

Guys I need your advice on this. I want to buy a headphone and my priority is sound quality. I have shortlisted two headphones. One is JBL J88 and the other is the Sony WH303 3 in 1 headphone. The WH303 is an exciting gadget as it has many nice additional features but as I said, my priority is sound quality. Tell me which one I should buy.

– Shubham Rana

**A** We haven't tried the Sony NWZ-WH303 but from the description it seems gimmicky. Most gadgets that try to pack in too many things – in this case wireless capability, an MP3 player, and speakers – can rarely manage to fulfil their core purpose properly. The J88 isn't bad, just a little more bass heavy than we'd like. If that's your thing then go for it. Try to hunt for the Koss Porta Pro – they're good. Also one of our all time favourites, the Harman Kardon CL, on-ear is on sale over at Amazon for a 50 percent discount (₹5000 instead of ₹10,000). It can't sweeter than that.



Harman Kardon headphones are really good. No, we mean they're really good!

### Q Which screen protector?

Which Is the best screen protectors Nilkin or Godosmith tempered glass? And how does one evaluate how good / effective screen protectors are?

– Abhinash Mishra

**A** An easy way to find this out is to watch a few YouTube videos where the prowess of these protectors are put to the test. If you are looking at the technical aspects then a screen protector has to be subjected



Screen protectors are important, aye?

to common items found in the average person's pocket like keys, metal pens and all sorts of jewellery including the precious stones set in rings. Why these objects? Because they are hard enough to scratch the glass on your mobile phone. Precious stones are some of the hardest known materials and the fact that they're likely to be found in one's pocket is all the more a reason that they should one of the things used to scratch a screen protector. Drop tests are useless since the screen is likely to shatter from the shock-wave whether there is a protector affixed or not.

Then they need to be subjected to visual tests to decide if the colours of the display seem to be affected or not. And the last point is to check the thickness and cutting of the edges.

We searched for both these brands and what we found was that most people could never test the two protectors because the first one they'd bought never needed to be replaced. So we'd peg these two at the same level of quality. But there were instances where the Nilkin was reported to not have properly cut edges. So you decide. **A**



### The first 10TB HDD?

WD's HGST announced the world's first 10TB HDD as a part of their helium-filled HDD lineup.  
<http://dgit.in/TenTBHDD>



### Clippy is coming

A Clippy-like helper might be making a comeback to Microsoft's next version of Office  
<http://dgit.in/MsftClippy>

# SPEND SMART

The launch of plenty of new game titles is just around the corner. Get armed and ready with our selection of gaming accessories from all categories.



## GAMING MICE

Brand	Model	Diode Type	DPI	Buttons	Base Weight (in grams)	Custom profiles	Cable Length (in cm)	Adjustable Weights (Y/N)	Price (in ₹)
Cooler Master	Alcor	Optical	3090	7	120	4	200	N	2,990
Cooler Master	Reaper	Laser	8200	8	145	4	180	N	4,600
Corsair	Vengeance M95	Laser	8200	15	181	Unlimited	NA	N	4,299
Logitech	G100s	Optical	2500	4	82.5	NA	200	Y	1,350
Logitech	G400s	Optical	4000	8	133	NA	200	N	1,935
Logitech	G602 Wireless	Laser	2500	11	NS	Unlimited	NA	N	4,525
Mad Catz	R.A.T. TE	Laser	8200	9	90	3	NA	N	7,591
Razer	Naga 2014	Laser	8200	19	135	Unlimited	213	N	6,074
Razer	Deathadder 2013	Optical	6400	5	105	Unlimited	213	N	3,399
Razer	Ouroboros Elite	Laser	8200	11	115	Unlimited	Detachable	N	11,500
Roccat	Kone Pure Core	Laser	8200	7	90	5	180	N	4,690
Roccat	Kone XTD	Laser	8200	8	123	5	180	Y	5,750
Steelseries	Kana v2	Optical	3600	6	72	Unlimited	200	N	3,599
Steelseries	Sensei	Laser	5700	8	102	Unlimited	200	N	6,831
TAG	Gaming 007	Optical	2400	6	NA	NA	160	N	700



## GAMING KEYBOARDS

Brand	Model	USB Slots	Audio Pass through	Mechanical (Y/N/Type)	nKRO	Macro Keys(Y/N)	Game Mode	Backlit (Y/N)	Palm Rest (Y/N)	Price (in ₹)
Cooler Master	Storm Quick Fire TK	N	N	Red	6	NA	Y	Y	N	6,999
Cooler Master	Storm Mech	2	Y	Blue	NA	15	Y	Y	Y	10,750
Corsair	K70	1	N	Red	Infinite	NA	Y	Y	Y	8,490
Corsair	K95	1	N	Red	Infinite	18	Y	Y	Y	9,746
Logitech	G510s	N	Y	N	6	18	Y	Y	N	6,450
Logitech	G19s	2	Y	N	6	12	Y	Y	Y	13,500
Mad Catz	S.T.R.I.K.E. 3	N	N	N	NA	12	Y	Y	Y	7,693
Razer	Blackwidow Ultimate 2014 Elite	1	Y	Y	10	5	Y	Y	N	10,999
Razer	Deathstalker	N	N	N	10	NA	Y	Y	Y	5,399
Roccat	Isku Illuminated	N	N	N	Y	8+	Y	Y	Y	6,849
Roccat	Ryos MK Pro	2	Y	All	Y	8+	Y	Y	Y	14,000
Steelseries	6GV2	N	N	Black	6	N	N	N	N	6,700
Steelseries	7G Pro	2	Y	Black	Infinite	N	N	N	Y	8,999
Tt eSports	Challenger Illuminated	1	N	N	NA	NA	Y	Y	N	4,199
Tt eSports	Meka G1 Illuminated	2	Y	Black	Y	NA	Y	Y	Y	10,499



## Crescent Bay

Oculus Rift announced their new prototype codenamed "Crescent Bay" with many new improvements.



## Final Fantasy 13 Trilogy

Square Enix recently announced that it will be bringing the Final Fantasy XIII trilogy to PC soon.  
<http://dgit.in/FF13Tri>

Price Watch



## GAMING HEADSETS

Brand	Model	Channels	Driver Units (in mm)	Impedance (in Ohm)	Frequency Response (in Hz)	Wired/ Wireless	Cable Length/ Range(in metre)	Price (in ₹)
Astro	A50	7.1	NA	32	20-21,000 Hz	Wireless	NA	27,676
Cooler Master	Storm Ceres 400	Stereo	40mm	32	20-20,000 Hz	Wired	2.5	4,300
Cooler Master	Pulse - R	NA	42mm	50	20-20,000 Hz	Wired	3	6,999
Creative	Sound Blaster Tactic 3D Wrath	7.1	50mm	40	20-20,000 Hz	Wireless	NA	14,999
Logitech	G430	7.1	40mm	32	20-20,000 Hz	Wired	2.3	7,200
Mad Catz	Tritton Kunai (Multi-platform)	NA	40mm	16	20-20,000 Hz	Wireless	4.25	9,966
Mad Catz	Tritton AX 180	Stereo	40mm	32	25-20,000 Hz	Wired	NA	6,926
Plantronics	Gamecom 780	Virtual 7.1	40mm	32	20-20,000 Hz	Wired USB	2	4,599
Razer	Carcharias	Stereo	40mm	32	20-20,000 Hz	Wired	3	5,579
Razer	Kraken 7.1	Virtual 7.1	40mm	32	20-20,000 Hz	Wired USB	NA	8,955
Razer	Tiamat 7.1	7.1	40mm	32	20-20,000 Hz	Wired	3	16,394
Roccat	Kulo	Stereo	40mm	50	20-20,000 Hz	Wired	2.5	3,899
Roccat	Kave	5.1	30mm	32	20-18,000 Hz	Wired	4	6,000
Sennheiser	G4ME ZERO	5.1	NA	150	10-26,000 Hz	Wired	3	20,000
SteelSeries	Siberia 3H	Stereo	40MM	50	10-27,000 Hz	Wired	2	1,790
SteelSeries	Siberia V2	Stereo	50mm	32	18-28,000 Hz	Wired	3	5,480
SteelSeries	9H	5.1	NA	32	10-28,000 Hz	Wired	3.2	13,999
Tt eSports	Shock	Stereo	40mm	32	10-10,000 Hz	Wired	3	3,098
Tt eSports	Shock One	Virtual 5.1	40mm	32	10-10,000 Hz	Wired	3	7,299
Zebronic	Stingray	Stereo	40mm	32	20-20,000 Hz	Wired	2	525



## GAMING MOUSEPADS

Brand	Model	Type (Hard/Soft/ Semi/Hybrid)	Base material	Width (in mm)	Length (in mm)	Height (in mm)	Price (in ₹)
Cooler Master	CM Storm Speed-RX Large	Soft	Rubber	450	350	NA	1,699
Corepad	Deskpad XXXXL	Soft	Rubber	1200	600	3	2,500
Logitech	G240 Cloth	Soft	Rubber	380	280	1	750
Logitech	G440 Hard	Hard	Hard Rubber feet	342	318	NA	1,199
Mad Catz	G.L.I.D.E. 7	Soft	Rubber	308	250	2	2,500
Razer	Goliathus Fraggd Omega - Control	Soft	Rubber	215	270	3	1,999
Razer	Goliathus 2013 Speed	Soft	Rubber	355	254	3	902
Razer	Vespula	Hard	Hard Rubber feet	240	300	4	2,449
Razer	Goliathus Extended	Soft	Rubber	920	294	4.3	2,350
Roccat	Taito Mini - Shiny Black	Soft	Rubber	265	210	3	450
Roccat	Sota Granular	Semi	Rubber	350	270	3	1,550
SteelSeries	QcK 63004	Soft	Rubber	320	270	2	819
SteelSeries	QcK 63008 Heavy	Soft	Rubber	450	400	6	2,099
Tt eSports	Conkor	Soft	Rubber	320	400	4	1,575
Zebronic	Glide+ A65 Professional	Soft	Rubber	400	300	NA	430



# digit KILLER RIGS

Everything you'll ever need to build your own PC. Whatever your budget.

■ Basic rig = ₹25,320 ■ HTPC = ₹28,636 ■ Entry-level gaming = ₹48,530 ■ Mid-range gaming = ₹65,103 ■ Ultra high-end = ₹2,81,344 ■ Optional Accessories = ₹39,076

## BASIC RIG

<b>Processor</b>	Intel Pentium G3220	3,450
<b>Motherboard</b>	Gigabyte GA-H81M-S1	3,800
<b>RAM</b>	Kingston ValueRAM 2 GB 1333MHz	1,600
<b>HDD</b>	Toshiba 500GB	3,000
<b>Monitor</b>	Dell IN1930 18.5 inch	6,000
<b>Graphics Card</b>	None	0
<b>Cabinet</b>	NZXT Gamma	2,490
<b>PSU</b>	Corsair VS450	2,200
<b>Speaker (2.1)</b>	Creative SBS A120	1,250
<b>Optical Drive</b>	Samsung SH-224DB/IDDS	1,000
<b>Mouse</b>	Amkette Ash Black (Bundle)	530
<b>Keyboard</b>	Amkette Ash Black (Bundle)	0
<b>Sound Card</b>	None	0
<b>Total</b>		<b>₹25,320</b>

## HTPC

<b>Processor</b>	AMD A8-5600K	6,950
<b>Motherboard</b>	MSI FM2-A75MA-P33	4,500
<b>RAM</b>	Kingston HyperX Blu DDR3 4 GB	3,250
<b>HDD</b>	Western Digital WD20EZRX 2TB	5,500
<b>Monitor</b>	None (your TV)	0
<b>Graphics Card</b>	None (HD7560D onboard)	0
<b>Cabinet</b>	Cooler Master Elite 120 Advanced	2,977
<b>PSU</b>	Cooler Master Thunder 450W	2,560
<b>Speaker</b>	None	0
<b>Optical Drive</b>	Samsung SH-224DB/IDDS	1,049
<b>Mouse</b>	Microsoft Desktop 2000 wireless combo	1,850
<b>Keyboard</b>	Bundled	0
<b>Sound Card</b>	None	0
<b>Total</b>		<b>₹28,636</b>

## ENTRY-LEVEL GAMING

<b>Processor</b>	AMD FX6300	7,500
<b>Motherboard</b>	Gigabyte GA-970A-DS3P	5,950
<b>RAM</b>	G-skill F3-10600CL9S-4GBNT	3,100
<b>HDD</b>	Seagate Barracuda 1TB	3,700
<b>Monitor</b>	Dell S2240L	8,650
<b>Graphics Card</b>	Sapphire Radeon R7 260X 2 GB	10,050
<b>Cabinet</b>	NZXT Gamma	2,490
<b>PSU</b>	Cooler Master Thunder 450W	2,560
<b>Speaker</b>	F&D F680	3,000
<b>Optical Drive</b>	Samsung SH-224DB/IDDS	1,000
<b>Mouse</b>	Amkette Ash Black (Bundle)	530
<b>Keyboard</b>	Amkette Ash Black (Bundle)	0
<b>Sound Card</b>	None	0
<b>Total</b>		<b>₹48,530</b>

## MID-RANGE GAMING

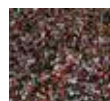
<b>Processor</b>	Intel Core i5-4440	11,450
<b>Motherboard</b>	Asus B85M-G	5,920
<b>RAM</b>	Gskill RipjawsX F3-12800CL9D-8GBXL	5,859
<b>HDD</b>	Toshiba 1TB DT01ACA100	3,880
<b>Monitor</b>	Dell S2240L	8,650
<b>Graphics Card</b>	ZOTAC GTX 660 192-bit 2 GB	13,499
<b>Cabinet</b>	Thermaltake Versa H21	2,995
<b>PSU</b>	Seasonic S12II 620 Watts	5,850
<b>Speaker</b>	F&D F680	3,000
<b>Optical Drive</b>	Samsung SH-224DB/IDDS	1,000
<b>Mouse</b>	CM Storm Devastator (Bundle)	3,000
<b>Keyboard</b>	CM Storm Devastator (Bundle)	0
<b>Sound Card</b>	None	0
<b>Total</b>		<b>₹65,103</b>

## ULTRA HIGH-END GAMING

<b>Processor</b>	Intel Core i7-4790K	24,500
<b>Motherboard</b>	ASRock Z97 Extreme6	16,700
<b>RAM</b>	ADATA XPG 2x 4GB (2 Kits) 2133 MHz	12,000
<b>HDD</b>	WD WD30EZRX 3TB + Samsung 850 Pro 256GB SSD	20,898
<b>Monitor</b>	BenQ BL3200PT	75,000
<b>Graphics Card</b>	ZOTAC GTX 980 ZT-90201-10P Standard	45,000
<b>Cabinet</b>	NZXT Phantom 820	16,836
<b>PSU</b>	Cooler Master V1000	15,200
<b>Speaker</b>	Logitech Z906 5.1	23,750
<b>Optical Drive</b>	LG Blu-ray WH16NS40 RW	5,800
<b>Mouse</b>	Roccat Kone XTD	5,750
<b>Keyboard</b>	Corsair Vengeance K70	8,460
<b>Sound Card</b>	ASUS Xonar Phoebus	11,450
<b>Total</b>		<b>₹2,81,344</b>

## OPTIONAL ACCESSORIES

<b>Surge Protector</b>	Belkin 8 Socket Surge Protector	1,200
<b>Controller</b>	Xbox 360 Controller (wired)	2,499
<b>UPS</b>	APC 1000VA - BR1000G-IN	8,200
<b>Webcam</b>	Logitech HD Pro C920	6,424
<b>Headphones</b>	Sennheiser PX 100-II	2,990
<b>Mousepad</b>	Roccat Taito 5mm (265 x 210)	780
<b>Wireless Router</b>	TP-LINK TD-W8968	1,799
<b>Sound Card</b>	ASUS Xonar Essence STX	8,034
<b>External DVD-Writer</b>	Lite-On eUAU108	1,550
<b>Thermal Paste</b>	Arctic Silver 5 (3.5 grams)	600
<b>CPU Cooler</b>	Cooler Master Hyper 212X	2,700
<b>Fan Controller</b>	Deepcool Rock Master V3	1,600
<b>Case Fan</b>	Corsair AF120	700
<b>Total</b>		<b>₹39,076</b>



# Moto Matters

Interviewing Marcus Frost, Senior Marketing Director, EMEA and APAC at Motorola Mobility.

Siddhant Sharma

[readersletters@digit.in](mailto:readersletters@digit.in)

**Considering the success of the Moto G in India, how many units has Motorola sold?**

**Marcus:** Alright – Moto G as you say has been a phenomenal success globally. In fact it's Motorola's best selling smartphone. As for precise numbers, it has been a phenomenal success for India. Actually, Moto E has even been more successful in India because of its really aggressive price point and we're still delivering wonderful mobile experiences. Moto G, very successful and that's what we're so excited to now be announcing the new Moto G for ₹12,999 in India which is now available in India through Flipkart.com. And of course, we also have the new Moto X and the Moto 360.

**Is the Moto 360 a mass market device or a luxury offering? What's your target group?**

**Marcus:** Well, Moto 360 is creating a whole new category. All we heard from consumers is that they didn't want big lumps of technology. In fact, I'm wearing one now on my wrist. They didn't want big, square lumps of technology on their wrists. They wanted a beautiful timepiece first. So that's why you see a I've got a notification coming in right now. So first of all, the Motorola Moto 360 is round and that's what people wanted. It has got beautiful metal detailing, leather straps. So it's a beautiful timepiece first. Then what we've done is that we've brought it in the modern era by gently bringing notifications from your smartphone. So we got emails, messages, even directions and maps and more through to this interface to just make consumers lives even more full of choice.

**Since the Moto Maker was immensely popular for the Moto X, are we going to see a similar customisation option for the Moto X and 360?**

**Marcus:** Well the great thing that you mentioned about the Moto Maker is that it brings choices to consumers. So right when we started with the baby of our port-



Marcus Frost  
Senior Marketing Director, EMEA and APAC  
at Motorola Mobility.

folio that is the Moto E, it has changeable shells, back covers. So that you can have many different colours to express your own individuality moving through to Moto G, you'd have the same with changeable shells and also flip covers all part of the beautiful colour experience. When we moved to the Moto X, we were really delighted to have a black resin back as a standard option, but also we'll be bringing wood that is genuine wood finish with really genuine materials as well as and this is totally new, leather with a real leather back as well. So we'll be bringing lot of choices in terms of customisation to consumers and we're seeing a really strong reaction from Indian people. As for India, there's no plans for the Moto Maker yet. But there are a number of choices the customers already have through our devices, through our shells and the different finishes that are a standard offering.

**Clear the air about your acquisition by Lenovo. Is the acquisition complete in all its entirety? Any loose ends yet?**

**Marcus:** As of today – that is, mid-September – we're still a Google company. The Lenovo acquisition is preceding. We're waiting for

one final government approval and then we'll be part of the Lenovo family. We're still waiting to find out exactly when that'll be. Estimates are next few weeks or maybe a couple of months to go through. We're really excited about that and the scale that it brings to our company and very complementary geographies. They're very excited about the Motorola brand and also about the people who'll be joining the Lenovo family.

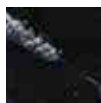
**We've also heard about the Motorola Moto Hint. Will India be seeing it anytime soon?**

**Marcus:** So Moto Hint has been announced in the US so far. What we're doing is we do our homework, we gauge the appetite in each country for that type of device. Moto Hint is a wonderful Bluetooth device which fixes very subtly in the ear and you can't really see it. Then, using the power of our technology, it brings information through to the earpiece. So we're still in the early stages of assessing the appetite in India and then we'll make a judgement as to whether it makes sense to bring it to India. So no plans as yet.

**How is Motorola planning to counter phones from other manufactures like Xiaomi giving tough competition to your budget offerings in the market?**

**Marcus:** At Motorola, we're very focused on consumers and what do they want. The way we believe that we're going to win is by providing wonderful smartphone experiences at incredible prices. Also, now we're moving into the wearables category as well with Moto 360. Making sure that we've got an incredibly strong service support so that we're always there if consumers have any questions. Then using our partner at Flipkart who can access the vast majority of India very quickly. So it's a very strong ring that we've setup in the market and that's how we intend to proceed.

You can read the rest of the interview online at <http://dgit.in/frostinterview>



### A Space elevator?

Forget launching shuttles to space, a Japanese company wants a working space elevator by 2050 <http://dgit.in/SpaceLift>



### Lesser wires

New USB Type-C standard reversible connectors would be able to carry audio and video both <http://dgit.in/TypeCUSB>

# OPENING THE GATEWAY TO ACCEPTING PAYMENTS ONLINE

Payment gateways can help you maximize revenue by accepting funds from nearly everywhere. But there's a lot to know about how you can accept, process and manage payments online.

Samir Alam  
[readersletters@dgit.in](mailto:readersletters@dgit.in)

**M**oney matters. Whether you're an individual start-up or an aspiring business – dealing with money online comes with the territory. In today's digitised financial systems, the need to have immediate and direct control over all the funds flowing in and out of your business over the Internet is a critical one. For independent businesses, start-ups and even large enterprises, the need to have an effective means to receive funds online is essential. We decode and demonstrate how any business can easily implement its own payment gateway on their online platform and the issues they need to take into account.

## RBI and Regulations

The last five years have seen a boom in online transactions across the board with smaller and more agile businesses taking advantage of the Internet as a sales and payment platform. This shift to modern payment methods draws parallel to a rise in digitally mature customers who are



Online transactions should be simple and secure

turning to online payments. In the midst of this, the Reserve Bank of India issued a notification on 22nd August 2014 titled – Security Issues and Risk Mitigation Measures Related to Card Not Present Transactions – for regulating and enforcing changes to how businesses must structure their digital payment systems.

In the wake of this announcement, the confusion amongst online businesses has only grown deeper, especially for those solely dependent on digital transactions. The phrase “Card Not Present” is a reference to online transactions where a debit or credit card isn't swiped and authenticated in person by the card-holder. In such transactions, the card details are held by the service provider with consent of customer and as per Indian law, can only issue a transaction using two-step

authentication. This simply means that the customer's card information held by businesses can't be used to charge the customer for any service unless the customer authenticates the transaction using two step verification.

## How does this impact you?

This system, although seemingly obvious, isn't an international standard and has resulted in erroneous charges and issues with the monthly statement. The requirement for two step authentication has been in place since 2009 but isn't always followed when customers make transactions with businesses operating from abroad but provide services in India, such as Uber.

The RBI's concern in cases of direct foreign payments out of India is due to the conduct of foreign businesses. Services like





## DuckDuckGo Blocked

DuckDuckGo joins the list of the websites blocked in China  
<http://dgit.in/DDGBlocked>



## Help NASA out

Solve, launched by NASA, makes it easier to find all their public competitions and projects  
<http://dgit.in/NASASolve>

Smart SoHo

Uber charge payments to Indian customers using a third-party currency exchange payment gateway outside of Indian laws. By effectively sidestepping the rules laid out for them they not only leave Indian customers vulnerable to financial fraud, identity theft and unwanted charges, but also dodge Indian taxation for sales made in India.

The RBI mandate in this respect doesn't impact Indian customers dealing with transactions involving Indian goods and services directly. But if an Indian purchased non-India based companies, then it comes into effect – and the use of two step authentication via payment gateways that end in Indian banks is the means to do so, forcing foreign businesses to involve the Indian financial system.

To clarify – the measures being enforced by RBI protect Indian customers at the cost of an extra step of verification, which effectively protects the customers' interests. By not allowing foreign businesses carte blanche rights to charge customers with shared credit/debit card information, the RBI is inconveniencing customers and making them say "yes" to a transaction twice, which really shouldn't be a big deal due anyway.

## What does it mean for Indian businesses?

The last few months have seen a shift and many debit cards issued by the public sector are slowly transitioning towards acceptance. All risk-based transactions still depend on credit and debit cards – especially as credit cards protect them from volatile currency exchange rates, which is often perceived to be a restriction in India, but it's not a purely governmental one. The mandate, when clearly understood doesn't impact Indian customers dealing with foreign services like web hosting, data hosting, retail or any other service. In those cases the transaction demands foreign currency and the RBI doesn't interfere with that exchange.

In this mix-up, Indian businesses are best served by providing as many and as versatile payment options as possible on their online portals. For Indian enterprises who accept payments online, their customer base is potentially international

and currency flowing into India through proper channels is always welcomed by the RBI and the Indian government. Being ready to take advantage of this shift is why knowing how to set-up your own payment gateway can prove critical to the financial success of your business.

## How do Payment Gateways Function?

Payment gateways have become the norm for online transactions, but the process and technology behind them is rarely considered or understood.

Payment gateways practically function as trusted intermediaries between customers, their banks, retailers and their banks, to allow for a smooth flow of funds. People normally pay for their shopping via credit or debit cards at Point of Sale (POS) systems. Such secure, physical systems are absent online and thus, payment gateways are required as middle-men.

transmitted to a bank for verification and the bank's response is processed by the payment gateway.

## Benefits of a Payment Gateway

For businesses in the 21st century, the Internet can be a double-edged sword, presenting small businesses a convenient method of finding customers, but also turning them away with something as simple as bad design. Most of these issues have been taken care of in today's world and it's more likely that a customer is more worried about security than aesthetics. Payment Gateways are particularly useful here as they remove this burden from the merchant and allow for a better online experience.

The vulnerability of old payment systems are many, but the most egregious of which is the lack of two-way security, leaving one party (in the transaction)

# PayPal™

One of the more prominent players in the online payment space

The system is essentially in five parts – the customer, the customer's bank or Credit Card company, the payment gateway, the merchants bank and the merchant. The encryption process and data routing through SSL (Secure Socket Layer) encryption can vary depending on the merchants deal with payment gateways on a case by case basis – but from the customer's perspective it becomes a seamless flow which takes them from purchase order to payment confirmation.

The primary function of the payment gateway is to tie in all essential checks and balances together online for a positive user experience. As customers place orders on a website and click "Pay now" they are taken to the payment gateway selection page. When availing off a payment gateway, all the data that's entered by a customer is first

with the upper hand, who can then take advantage of a situation if he sees fit to do so, while facing no real consequences. Payment Gateways are also as vulnerable to scams and hacks that extract customer data and this is where two-step authentication comes in, giving customers full control of their money.

Modern payment gateways have to employ the most modern methods of fraud detection and encryption if they have to stay relevant and are thus, genuinely safer than most other payment systems.

## Payment Gateways Available

It's worth noting that with the rise in small start-up online services and retailers, the payment gateway business has become more competitive. The charges, transaction fees and other



### Cheaper Flight Now

Google Now will now also show you the cheapest flights available  
<http://dgit.in/GNowFlight>



### Dartmouth's StudentLife app

There is an app that will let you know whether your mental health is affecting your grades  
<http://dgit.in/StudentLifeApp>



Understanding Payment Gateways will save you from a lot of heartache later

amenities provided by payment gateways are variable. With the entry of relatively new entrants such as PayU, Zaakpay and Flipkart's PayZippy, not only have service prices fallen for merchants but they have also forced the bigger companies like CCAvenue and EBS to remodel their pricing plans. We take into account the best of the lot and present you with an easy breakdown of their relevant features.

**CCAvenue:** All values are exclusive of tax charges and certain fees like Annual Software Upgradation Charges are payable in advance in April of every year.

**EBS:** Service tax is applicable on all charges. Payments for Monthly Maintenance Charge (MMC) including service tax are deducted via Electronic Clearing Service (ECS). Transactions are settled within two days from date of transaction

**Directpay:** All government taxes additionally applicable. They also support the use of ITZ Cash Cards as payment.

**PayZippy:** PayZippy has discontinued its Promotional plans as of June 2014. All rates exclusive of service tax.

**PayU India:** All government service taxes in addition to rates stated. Existing PayU users have a ₹2,400/- Annual Maintenance Charge on all plans. New users can avail of an offer with zero start-up costs, zero maintenance charges and 2% Transaction Discount Rate on a special offer in September 2014.

**Zaakpay:** Details for Zaakpay are likely to change by time of publication.

### What's Right for You?

Different businesses have different needs. If you are a small firm beginning sales online your needs require flexibility to scale up, low transactional costs and a high integrity framework where the least possible transactions suffer from technical problems. In order to ensure your requirements you would have to gauge the pros and cons of the listed payment gateways and integrate the changes in your pricing to see which one works best within your means. The point to be remembered is that the convenience and assurance of a payment gateway is a critical business investment.

The volume of transactions help define the definition of businesses online. Very rarely do we find single large scale retail payments which go into lakhs per transaction. Most businesses online can, on average, plan for a few thousand rupees at most for a per transaction amount. Since the security standard across the payment gateways is very standardised the add-ons of fraud detection are the only features that need to be negotiated. The biggest trade off to be considered is the increased costs to the company and how well it can be absorbed through changes in a merchant's pricing model.

The best means in this respect for a small business is for them to take advantage of promotional offers where minimal set-up costs are required. The higher transactional rates are best absorbed by the company or passed onto customers

through price changes. This allows them to offer the best customer experience and plan for scaling up to a higher subscription based payment gateway as time goes on. In comparison to mid-range business, the need to scale up should be highly prioritised over transaction charges. The security, convenience and universality of acceptance is most needed for customer aggregation and growth.

Mid-sized businesses on the other hand definitely benefit from the set-up costs for investment in payment gateways as they are able to amortize the cost across the breadth of their larger future revenue. Given the comparatively larger sales transactions mid-range business can afford to use payment gateways more liberally and even consider the benefits of partnering with banks for web servers themselves to improve sales efficiency. However, if you're anticipating a higher transactional frequency for a one time use – such as accepting delegate payments for an event, which can reach into thousands of transactions – it's best to opt for a free payment gateway service which has a higher transactional charge.

For cases where the business has extremely low overhead or is singularly run, such as a home craft delivery service or a freelancer initiative, the best option is still to use online banking payment systems. Such merchants can have their banking information securely transmitted to verified customers and the customers can make payments using their own online banking services through RTGS or NEFT transfers. This system, although slower is still the most cost effective for an independently run solo enterprise. You can also consider starting an e-commerce website from scratch using services such as Shopify and Zepo.

### Steps to Implementing a Payment Gateway

In today's service-oriented enterprise model it isn't necessary or recommended that you code your own website for payment gateway support. The process required to securely connect your own platform to banks can easily be obtained using optional features from your Content Management Service provider



## Cyborg Unplugged

This device will sound an alarm when drones, cameras and more enter your vicinity <http://dgit.in/CyborgUnplug>



## iHistory

Read on to go through all the Apple smartphones right from iPhone to iPhone 6 <http://dgit.in/HistoryiPhone>

Smart SoHo

such as Wordpress or Squarespace. If your e-commerce platform is designed on BuildABazaar.com or Zepo.in, the payment gateway features are already in place and require no tinkering from you.

## Using CMS Plugins

If your website is hosted and managed by services such as Wordpress, Wix, Weebly, Squarespace or Jimdo then you can select the requisite e-commerce features that suit your needs. The plugins are easy to integrate into the website and offer the convenience and ease of use that merchants need. The only vigilance merchants should demonstrate when selecting these plugins is the specific pros and cons of these plugins. Most popular CMSs are well secured so protection may not be the biggest concern, but costs might be. Merchants need to weigh the different costs to see which one suits them best.

## Adding to an existing website

If you already have a website in place and wish to integrate your chosen payment gateway service the steps required are a bit more than just adding a plugin. The e-commerce functionality needs to be integrated across all the pages of the website for consumer ease of use. These links will have to lead to a new shopping page where you can integrate the shopping cart system which, in itself, will require a backend database that manages inventory and supply chain. If you wish to have a simple payment gateway without any of the database management behind supply stock, then a single payment gateway page can also be created. The steps for this vary but all of them cover the following points in some respect or the other.

## Basic Requirements

Check with your chosen payment gateway whether they support the nature of your business. Many payment gateways steer clear of businesses selling adult goods and services, certain gadgets like signal scramblers, mod chips, copies of copyrighted goods, drug related goods, animals,

plants, weapons and much more. It's best to read through the terms and conditions carefully to see if your business is supported by the payment gateway service.

The next basic requirement is a fully functional glitch free website which is already live. The basic page information tabs like - About Us, Privacy Policy, Contact Us and Terms & Conditions page should be easily accessible and verifiable. Only when these requirements are met can you sign up for a payment gateway with no risk to future rejection.

## Applying and Processing

The next step is to go to the website of your payment gateway and select your plan. Once you've submitted all your details and made the payment the veri-



Payment Gateways can cut out the middle-man


fication process begins. In a period that can last as long as 2-3 days, the payment gateway company verifies your application and runs a check on your website to see if it's suitable to them. The scrutinisation usually takes place by the Business Development and Security team of the payment gateway company who may contact the merchant personally to seek more information, such as nature of business, proof of business ownership etc. The process, if approved, moves on to the next stage of implementation.

The initial approval leads to the gathering and submission of all relevant

legal documents necessary for the deal. The merchant needs to prepare the necessary documents and sign on to the Client Service Agreement given to them from the payment gateway. The printed and signed agreement then needs to be stamped by the Authorized Personnel of the merchant company and attested on stamp paper in the presence of witnesses. This creates a legally binding agreement between the merchant and the payment gateway to indemnify them any liability from the actions of the merchant.

Within the next seven days of receiving the signed document, the payment gateway is configured for your website. Depending on the type of gateway - external or internal - you may need to add an additional programming script within

your website's code. However in modern cases this is becoming a rare reality as easy to link widgets, PHP code and meta-tags can be pasted within the merchant page's shopping page to direct payments using an external gateway. This places all the transactional details on the payment gateways website, freeing the merchant from managing any security concerns and databasing of customer information.

If you are a merchant, unfamiliar with coding and programming skills you can rely on the payment gateway's technical assistance which can walk you through the steps one by one. 



**SKOAR!**

Turn to this page to find out what we thought of Bungie's latest shooter, and if we're any good at playing the guitar

**Community**

Some buying advice from an avid reader and also, how a guide to setup home streaming with your game console

# The worst jobs in the world

You might be sitting at your desk in a claustrophobic booth and cursing under your breath, thanking the Lord for the entertainment that this magazine in your hand provides, but fear not! There are people who are worse off than you and this is what they do...

**Forensic Entomologist**

There are many among you who were absolutely fascinated by *The New Detectives* on Discovery Channel, dreaming of the day you'd go around solving cases with your keen insight. Who would have thought that you'd end up studying maggots in corpses, estimating time of death by studying the development cycle of blow flies.

**Armpit sniffer**

One doesn't often grow up with the dream of sniffing armpits (unless you have some sort of perverted fetish), but this is, unfortunately, what a select few people end up doing. Whether voluntarily or not we don't know, but there must be better ways to earn a living than to test the efficacy of deodorants by sniffing sweaty armpits.

**Prosthetic Horse Tooth**

You have to really be in a bad way if you're willing to sign up for a job that requires you to fill in for the teeth of a toothless horse (by chewing hay for the aging animal). Well, at least you're not being called on to chew cud for a cow, and who knows, it might actually turn out to be quite pleasant. But wait, where's that fine print?

**Flatus odour judge**

Subjects volunteer to eat beans, insert small collection tubes in their, ahem, nether regions, and their flatulence is collected in said tube. As a flatus odour judge, you are required to thoroughly examine each sample by "inhaling robustly" and rating the fumes on their degree of noxiousness. Are you up for the challenge?

**Animal inseminator**

Insemination is an art that's appreciated in many forms, but animal insemination is an underrated skill that requires plenty of patience, strength (you try assisting a manic bull with raging hormones) and creativity. Inseminating pigs is comparatively easier. But hey, if you're an animal lover, what could be more personal? \*wicked grin\*

**Putrid waste disposal**

Waste disposal is in itself a disgusting job, but when you're in charge of disposing off medical waste, it reaches a higher level of disgusting. A biohazard waste disposal worker is often charged with separating such items as blood, guts, teeth, fat and more from medical waste, and then disposing off the waste in an appropriate fashion.

## SmartEyeglass SDK out

Sony SmartEyeglass has released its SDK and soon will be releasing the hardware  
<http://dgit.in/SonySDK>



## Encryption in Android

With Android's next release, Google plans to encrypt user data on all devices while activation  
<http://dgit.in/AndEncrypt>

Unwind

## How we unwind



### Flight Sim

Authentic flight sims are a rare breed of game and gamers who play them are even rarer. Thankfully, our office has a die-hard fan in the form of Anirudh, who's infectious delight in DCS Huey got everyone interested enough to try their hand at the joystick. Simply taking off was a real pain, but we did have fun.

### Ant à la Lambo

We packed off our in-house prodigy, the incomparable Ant, to Lambo's stables to experience the brute power of the Huracán. While the guys at Lambo's stall didn't actually let him drive the car, he did manage to get some hands-on time with the car as you can see below. He is a bit camera shy though.



### Parwatay's Partay

Our assistant editor finally celebrated the 28th anniversary of his birth this month. An occasion marked by (as usual) a cake facial, broken strands of "Happy Birthday" and a moment of silent deliberation on Sid's part as he contemplated his life and what he's done with it for so many years.

## digit DIARY

Sid jet setted to the US to meet some NVIDIA folk, an assortment of Pacific ocean creatures, including a close encounter with some extremely gorgeous militarised mermaids who he wanted to drown his sorrows with, but, like a true geek (as befitting the editor of India's largest tech magazine), forgot about as soon as the world's fastest GPU was unveiled – the GeForce GTX 980.

He came back with a bag full of NVIDIA goodies (Shield Tablet, Shield Controller, et al) and the best assortment of Hershey's chocolates the lads have partook in for a while – and a short while did they partake (about 45 minutes and the bag was empty).

Sid also returned to find a mountain of work piled up on his plate. Forget eating or drinking on time, his preoccupation with work almost made him forget his own birthday – of course the rest of the team ensured that didn't happen and plastered his face with triple-chocolate chip cake, with our very own Big Daddy leading the assault. Also, Sid's taking belated happy birthday wishes from the fans, so bring on the spam!

Mithun was kept busy too – busier than a couple of hamsters on adrenaline boosters in a hamster wheel store. In between looking after his kitty and starting the construction on his ebola-free apocalypse bunker, he shouldered Sid's responsibilities admirably – coordinating with freelancers, managing his own work, and installing keyloggers on all unprotected office PC terminals, all whilst battling fits of office boredom. Even his Ingress portal-hacking was at a standstill, much to Google's disappointment. Towards the end of the month he was thrown into the deep end with the new GTX 980 – followed by migraines, nosebleeds and blood rage.

Closing the magazine on time was a real challenge, with our venerable and solitary layout warrior, Baiju, tripping over his feet, fracturing his toe in the middle of issue closing haste. Luckily, he wasn't going down without a fight, returning to office with his foot plastered, strapped, and knocking down Digit pages like dominoes in an earthquake.

Siddhant returned for a couple of days during issue closing, fed up of being closeted (in more ways than one) within his house since forever. For his helping hand, the Digit guys sent him off to attend the Lamborghini Huracán launch event, knowing fully well Siddhant's soft-spot for fast cars and Lamborghini in particular. However, the tall "Intern of the Year Forever" couldn't fit into the four crore car comfortably, resembling a ferret stuffed into a film canister. We have pictures, if anyone's interested. But we'll want a sacrifice in return.

Another abnormal thing the Digit guys indulged in this month was getting carried away with their Diwali wishlist recommendations, with several eccentric writers actually going ahead and buying these products. They've so far spent over a lakh, saving tens of thousands in discounts. Maybe they have too much cash to throw around – if so, why no rice bucket challenge eh?

Also, remember the house intern, Abhijit Dey? He's an employee now, and was welcomed to the team with a painful lesson. Without going into too much detail, he left himself logged into Facebook before hurrying homewards. Our team sniffed it out, posted all sorts of NSFW updates on his FB wall, leading to jaw-dropping, shocked, and outrageous comments from Abhijit's family and friends. He's never going to forget to log out of any machine for the rest of his life.



Robert Sovereign-Smith  
robert@digit.in

First off, I should say I'm not a hardcore gamer, and I've never played Guitar Hero or any other game designed to delude you into thinking that your plastic, guitar-shaped controller is a guitar, and that you're as talented as Joe Satriani (or whoever your musician God is).

I remember telling someone, "No, you're not playing guitar, you're just rather good at tapping coloured buttons in something akin to a whack-a-mole game. Monkeys have been known to do the same for treats..."

As for my guitar skills? I suck, which is why I called for a copy of Rocksmith 2014 to test its claim of being "the fastest way to learn guitar".

I got a Steam code for the game from Ubisoft, some codes for DLCs (Downloadable Content) and installed it to find out that you need something called a 'Real Tone Cable' to connect your guitar. Bummer! Many months later, I was reminded about the game and bought the cable.

I fired up the game, went through the rather boring setup process of calibration and tuning (targeted at absolute beginners). I skipped whatever was skippable and dove straight into the "Learn a song" option. Big mistake.

This game is designed for those who've played games like Guitar Hero before. You still get visuals that are designed to tell

you what to press when, except here it's one of the strings on your actual guitar at a specific fret, instead of a plastic button. When a chord is displayed, the game even tries to tell you which finger to place where in order to play it correctly. So I had to go back and patiently sit through the tutorials to understand the controls. Lesson learnt.

I'd never played Def Leppard's *Pour Some Sugar On Me* before, or even tried to. However, just by repeatedly playing it in Rocksmith 2014 (first with a rhythm guitar profile and then with a lead guitar profile) for 2-3 days (a couple of hours each day), I now play the song well enough to perform it on stage, if needed.

Now the pace of learning will be different for every person, and while many of you will be able to learn songs much faster, some might take a bit longer. But the fact of the matter is, this game really does teach you how to play a few popular songs, and does it pretty quickly. It also adapts to your skill level automatically, however you can also manually force it to the level of difficulty you want.



## Verdict

Is it better than a human guitar teacher showing you the ropes and teaching and correcting your techniques? Not at all. In fact, you're likely to pick up some bad habits. Plus, the game is too "precise". An example of this is when the game expects you to play quick chords or notes (say, A then B), it expects you to pick each note with your plectrum, whereas those used to playing guitar will take the shortcut of sliding up to B from A. If you do that though, the game counts it as a "Miss" despite both notes sounding clear.

Is there a simpler and cheaper way to learn the basics of guitar? Not at all. Rocksmith 2014 makes learning guitar a challenge, with competitive scoring. So, even if it's just to beat a friend's score, more kids will learn to actually play a guitar rather than by tapping away idiotically at those stupid plastic controllers, and for that it gets my unequivocal support.

I've also recently discovered guitarists on our forum who play Rocksmith 2014. Go to <http://dgit.in/1tU52xG> to see what they're upto.

## MOAR!

**Developer:** Ubisoft San Francisco

**Genre:** Music video game

**Price:** ₹2,999 (Xbox 360, PS3) + ₹499 cable; ₹2,999 (PC - cable included)

**Publisher:** Activision



## Destiny unlocked

Videep “Fr4k” Kumar  
feedback@skoar.com

What makes a good game? Is it simply a matter of conforming to certain expectations, garnering universal critical acclaim and being a commercial success? Is it about the making of yet another case for the ‘games are art’ argument? What about the triumph of design, or creating a flawless emotion-evoking interactive symphony? Or is it merely sufficient for a game to be ‘fun’, taking that word in its broadest possible meaning? If one were to answer “yes” to that last question, then Bungie’s *Destiny* is certainly most certainly a good game.

There’s an evident emphasis on player-driven plot and ‘meta’ stories, but *Destiny*’s storytelling is so poor, it’s practically nonexistent. It should have been called ‘Endless hours of investment on the part of players in the quest for loot’.

Whether you’re playing through the story, doing patrols, farming loot or dying repeatedly on a Level 24 ‘Strike’ mission, playing with someone else in *Destiny* feels uncomplicated and natural. It’s something that’s made easier by the game’s match-making system which does a super-fast job of not only finding you something to play, but people around your same level to play it with. Competitive multiplayer, on the other hand is largely derivative. Playing matches is only a means to

an end. The absence of private matches or lobby system is also a major issue.

*Destiny* sports some incredibly satisfying gunplay and there’s some good weapon variety to boot. Guns cover the arsenal that most gamers are familiar with. The game’s Fusion rifles are particularly fun owing to their over-penetration ability, allowing you to take out multiple foes at once. Weapons such as the Hand Cannon, for instance, help you score satisfying headshots thanks in no small part to the not-so-subtle auto aim that ensures that you get more than your fair share of critical hits. And in typical Bungie style, melee attacks pack a punch worthy of Master Chief himself. Uncommon, Rare and Legendary weapons can be found/purchased and upgraded later in the game as you gain experience points as well.


There’s no complex number crunching at play in *Destiny*—as you level up your character, playing as one of three classes, the Titan, Hunter or Warlock, you unlock unique abilities and get better gear in the form of loot drops (or you could purchase them at various vendors in the Tower) which will help you tackle the next harder mission. Each class features a sub class—both sub classes sport distinct abilities and need to be levelled up separately. Bungie has absolutely nailed the pace of character progression in addition to loot drop frequency and difficulty scaling. There’s always just enough to keep you coming back for more. Grinding for weapons, armour and loot is an abso-

lute essential, and as a result, gameplay is very repetitive. Expect to traverse familiar areas and combat familiar foes more than once to get your loot fix. As the endgame approaches and you hit level cap, the quest for loot is pretty much all you’ll be doing when you’re partaking in a high level Strike or Raid.

From locales to weapon and character design, *Destiny* is an absolute visual feast. The idea to use real planets such as Mars and Venus rather than nonexistent sci-fi planet names seems to have paid off too.

A really disappointing aspect of *Destiny* is the voice acting of the non-player characters. Despite sporting names such as Peter Dinklage (*Game of Thrones*), Nathan Fillion (*Firefly*, *Castle*) and Lance Reddick (*The Wire*, *Fringe*), *Destiny*’s citizens come off as shockingly lifeless. The nonexistent story and poorly fleshed out characters accompanied by monotonous dialogue delivery make for some of the drabest voice acting you’ll hear in a game.

### Verdict

*Destiny*’s strong gunplay and near-perfect co-op and loot will keep you hooked, but decent solo play and PvP might ruin it for some of you. 

### MOAR!

**Developer:** Bungie  
**Genre:** Action RPG, FPS  
**Price:** ₹3,999 to ₹4,299  
**Publisher:** Activision





## NASA blasts off 3D Printer

SpaceX Dragon blasted a 3D Printer off to the International Space Station earlier this month <http://dgit.in/3DPrinterInSpace>



## GIFs on your wall

If you want to put up animated photograph and graphics over your wall, you have Canviz <http://dgit.in/Canviz>



Every month we highlight some aspiring tech writers and their spirited attempt to get published in the magazine. Let's have more!

# Media streamers and buying advice



Praneet Sah

### How to avoid being fooled

Ever have it happen to you that your laptop labelled "Intel i7 inside" runs slower than another laptop with the same label? If yes, then you're not the only one. The fact is that companies generally hide the full name of that specific component. And it's not just the case with computer processors – this is true regardless of whether it's something as simple as a RAM stick or as costly as a graphics card. So you must be thinking: "How can they cheat?" Well, they aren't actually cheating. All that these companies did was present their products in attractive ads starring your favourite celebs, compelling you to buy the product. So it was your fault, really.

### Don't get taken for a ride

The next question on your mind must be: "How can you deal with it?" First and foremost, NEVER believe what the salesmen say. Keep in mind that the core purpose of his job is to make a sale. If you don't follow this advice, reading the article further won't fetch you anything. A few months ago, we bought a laptop from a store where the salesmen pointed to a range of laptops and informed us, "All of these are i7 laptops, you can pick any of them. They're equally powerful." Strange, considering that the prices varied from ₹50K to 80K. At that moment, a normal customer would have simply picked up the 50K model under the assumption that it's equivalent in performance to the 80K model. But that's not true. Let's see why, beginning with the processor.

### Differences in processors

In the i7 series itself, there are dozens of different models and each of them has some performance differences. As of now, for laptops there are two processors which are quite popular: the i7-4700MQ and the i7-4702MQ. Both of them are being used in high-end laptops, but which one is more powerful? You'll never know because companies generally don't even specify the exact model numbers! They'll simply leave you with a "Powered by Intel i7" logo. Although they both look almost the same, the fact is that the 4700MQ outperforms the 4702MQ model by a small margin. The 4702MQ is more power efficient, while the 4700MQ is more of a performance beast. So now that you're aware, always check the exact model number and do your research before purchasing.

### Differences in graphics cards.

The next component is the graphics card and here we'll be referring to graphics cards used in desktops. Even in the selection of GPUs, the fault lies with the customers, more specifically their

perceptions. What some users generally do is they simply find the best GPU for their need – let's say the Radeon R9-290X – and then purchase it. Once again, you may be compromising on a better performing component, available at the same cost. To explain it simply, think of the Radeon R9-290X as the batter for your cake. This batter is purchased by/distributed to different companies, who do the baking and serve it to you under different names and at varied prices; for example, the chipset R9-290X is available in the market branded as 'Sapphire R9-290X' or 'Powercolor R9-290X' or 'Gigabyte R9-290X' among other names. The actual ingredients can vary, resulting in some variants being better than the other.

Sorting through these GPU variants might be hard for the novice, so spend some time on forums and other websites and read up reviews on the options available.

### Differences in RAM sticks.

Another such component is your RAM stick. You've probably been asked, "How much GB of RAM does your computer have?" While the amount of "GB in your RAM" is a big deal, speed matters just as much. Generally, nobody cares about the speed and buys the cheaper option, which obviously has less speed. This is partly what makes your memory-intensive applications run slow. The RAM speed isn't noticeable in games/applications and better RAM would make a performance difference of only 3-5 percent. However, if you're a hardcore user with tons of tabs open in programs such as Firefox or Google Chrome, consuming about 1-2 GB of RAM, the speed of the RAM will matter. Also make sure that your RAM is compatible with the motherboard you're using since not all speeds are supported by all motherboards.

The list doesn't end here. There are tons of other products that you should research carefully before buying, such as your internal hard disk drives; companies generally advertise only their capacity, while the speed, which is just as important, is left unmentioned. A 1TB internal HDD with 5200 rpm of speed won't be as fast as a 7200 rpm drive of the same capacity. As I've advised before, find the products' exact model numbers and then Google them. Now, an important thing to keep in mind here is to ensure that there's no overkill, which generally happens while upgrading your desktop. If you have a slow processor, then getting a RAM of very high speed will serve no purpose, as would be the case for a high-end graphics card. So before every purchase, do your homework well and then spend smartly.

**Disclaimer:** The above topic is purely for educational purposes. Do keep in mind that you are modifying core visual components of the operating system and any malfunction could lead to a dysfunctional OS installation that might not boot in certain select scenarios. Most of these software enjoy a wide user base and are quite safe. Digit and its parent company are not legally responsible for any outcome that may arise out of the implementation of the above articles in any and all ways.



## VR free running

Here's a device that ensures you don't trip over real objects wearing an Oculus Rift  
<http://dgit.in/Cyberith>



## Stop texting and driving!

ComSonics is developing a radar gun that will detect drivers who are texting and driving!  
<http://dgit.in/ComSonics>

Digit Squad

## COMMUNITY CREATIONS

The diverse digit community has quite a few enterprising individuals who've created PC software, websites, extensions, artwork, games and apps. We feature one such enterprising individual each month along with their creation.



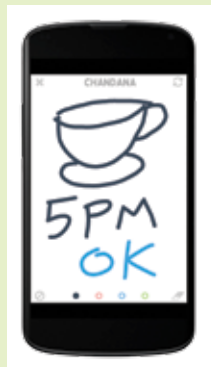
Venkat

Venkat is the founder of Peopledock software, a 5-person product startup that's based in Hyderabad. The company has also successfully worked on a product that they call SVYFT, an enterprise collaboration tool that's built around group chat.

Venkat himself is an avid football player and a graduate from IIM-Ahmedabad and his creation, the Drawft app, was inspired by his two nieces' communication needs, who found current IM services to be too restrictive.

### Creation: Drawft app for Android

Communication shouldn't be complicated, and that's what the Drawft app aims to simplify. In his own words, "You draw it, they see it; they draw it, you see it!" That's it. Drawft is a no-nonsense communication tool that allows registered users to communicate with the simple expedient of drawing on the screen. Best of all, it's a 100% private and no data is stored. Nothing that you want will ever be stored unless you want it to be.



- Click on the Add button to add the folder where all your Content is stored
- Click on Transcoding in Settings and click on TRANSCODE
- This will make sure that all your content will work, with conversion on the fly
- Save your settings by clicking Save on the top
- Click on Start. Search for "Media Streaming"
- Enable media streaming options
- Click Start Server on PMS

### PS3 Settings

Writing step-by-step guides for every single console is way beyond the scope of this article, but this guide for the PS3 is representative of what you can expect on other consoles/platforms. A bit of intelligent mix and match should get you exactly what you need in no time at all, plus, there will be many people on forums also who will be willing to help you with more specific details.

- Go to your console turn the internet on
- Go to Settings>Internet Settings
- Enable Media Streaming Settings On
- The console should now turn up on PMS
- If you want to see Videos click on Videos in XMB
- There should be an option of PS3 Media Server
- Click on that to watch the videos. 📺



Tarun Dham

### How to Stream Your Media Content to Your PS3 Console

Most of us geeks are media hoarders, we make a hobby of collect movies, TV shows, audio, etc. At the same time, despite the size of our collection, we know that viewing and experiencing that content on our consoles will be quite a challenge.

Here's a small guide to help you stream content to some of the most popular consoles in the market.

First off, to stream content you need a Wi-Fi enabled Modem, a computer that has Internet connectivity and the console to be connected to the Internet (duh).

### First, a checklist

You need to ensure that you have the following items at hand in your house if you're to enable streaming to, say, a Sony PS3.

- Download PS3 Media Server(Available for Free)
- Download and install Java
- Install it on the Host computer
- Go to Navigation/Share Settings on the PMS(PS3 Media Server)



PC, Laptop  
Tablet, Mobile

सुरक्षा



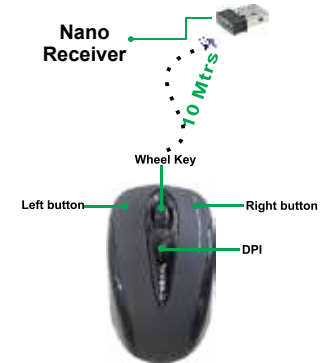
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- Grey



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- black
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- 2.4G Wireless Technology
- Nano Receiver
- Ergonomic Design
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WEIGHT	APPROX. 166 KG (159.5 KG WITHOUT FUEL)

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